

# INTERSTATE 25 / ILEX BRIDGES

## CORRIDOR IMPROVEMENTS DESIGN BUILD ARCHITECTURAL DESIGN REQUIREMENTS

JUNE 17, 2014 <sup>2</sup>

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

<sup>2</sup> REVISION 6-17-14  
<sup>1</sup> REVISION 5-20-14

COVER



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CHAPTER 4	HIGHWAY LIGHTING
CHAPTER 5	RETAINING WALLS
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CHAPTER 7	FENCING AND LETTERING
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CHAPTER 9	IRRIGATION PLANS AND SPECIFICATIONS
CHAPTER 10	SEEDING PLANS AND SPECIFICATIONS
CHAPTER 11	LANDSCAPE PLANS AND SPECIFICATIONS

ITEM	COLOR
<u>BRIDGES</u>	
ABUTMENTS	'SUNTAN' CONCRETE STAIN TO MATCH FEDERAL COLOR 30279
DECORATIVE PANELS	'FLESH' CONCRETE STAIN TO MATCH FEDERAL COLOR 33617
COLUMNS/PIER CAPS	'BEIGE' CONCRETE STAIN TO MATCH FEDERAL COLOR 30450
DECORATIVE PANEL	'FLESH' CONCRETE STAIN TO MATCH FEDERAL COLOR 33617
DECORATIVE PANEL FRAME	'BROWN' CONCRETE STAIN TO MATCH FEDERAL COLOR 31090
GIRDERS	'BROWN' CONCRETE STAIN TO MATCH FEDERAL COLOR 31090
BRIDGE RAIL - CONCRETE	'BEIGE' CONCRETE STAIN TO MATCH FEDERAL COLOR 30450
BRIDGE RAIL - TYPE 10M	GALVANIZED STEEL
BRIDGE RAIL - CURB	'FLESH' CONCRETE STAIN TO MATCH FEDERAL COLOR 33617
BRIDGE DECK	'BEIGE' CONCRETE STAIN TO MATCH FEDERAL COLOR 30450
LIGHT POLE BASES	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
WROUGHT IRON FENCE	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
CHAIN LINK FENCE	VINYL COATED BLACK TO MATCH FEDERAL COLOR 17038
<u>RETAINING WALLS</u>	
MSE PANELS/CAST IN PLACE	'SUNTAN' CONCRETE STAIN TO MATCH FEDERAL COLOR 30279
CAP	'BEIGE' CONCRETE STAIN TO MATCH FEDERAL COLOR 30450
<u>HIGHWAY GUARDRAIL</u>	
TYPE 3 (W-BEAM) GUARDRAIL	GALVANIZED STEEL
MEDIAN BARRIER (TYPE 7)	'BEIGE' CONCRETE STAIN TO MATCH FEDERAL COLOR 30450
<u>HIGHWAY LIGHTING</u>	
LIGHT POLES	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
LIGHT POLE BASES	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
LUMINARIES	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
<u>HIGHWAY SIGNAGE</u>	
SIGN STRUCTURES	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
GROUND SIGN SUPPORTS	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
FRONT OF SIGNS	PER CDOT STANDARD
<u>TRAFFIC SIGNALS</u>	
TRAFFIC SIGNAL POLES	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
TRAFFIC SIGNAL POLE BASES	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
SIGNAL HOUSING	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038
ILLUMINATED SIGNS (IF USED)	POWDER COATED BLACK TO MATCH FEDERAL COLOR 17038

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

FEDERAL COLORS:



NOTES:

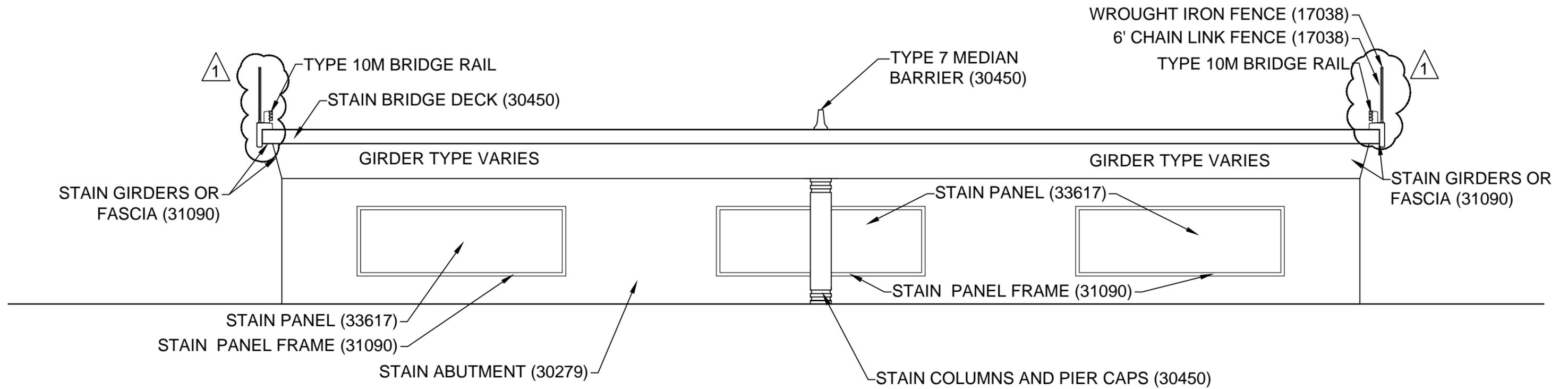
1. ALL COLORS SHALL HAVE A MOCK UP 10' X 10' PANEL APPROVED BEFORE COLORS ARE APPLIED TO ANY STRUCTURE
2. COLOR SELECTION BASED OFF CDOT MEMORANDUM DATED JANUARY 19, 2005 FOR COLORADO CODES FOR I-25/SH-50/47 INTERCHANGE
3. STAIN SHALL BE USED ON THE STRUCTURE AND MSE WALL COPINGS
4. STAIN SHALL BE USED ON MSE WALLS

STANDARD COLORS THROUGHOUT PROJECT

# COLORS AND FINISHES



1.0



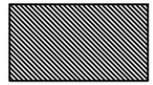
NOTES:

1. STAIN ENTIRE GIRDER (31090)

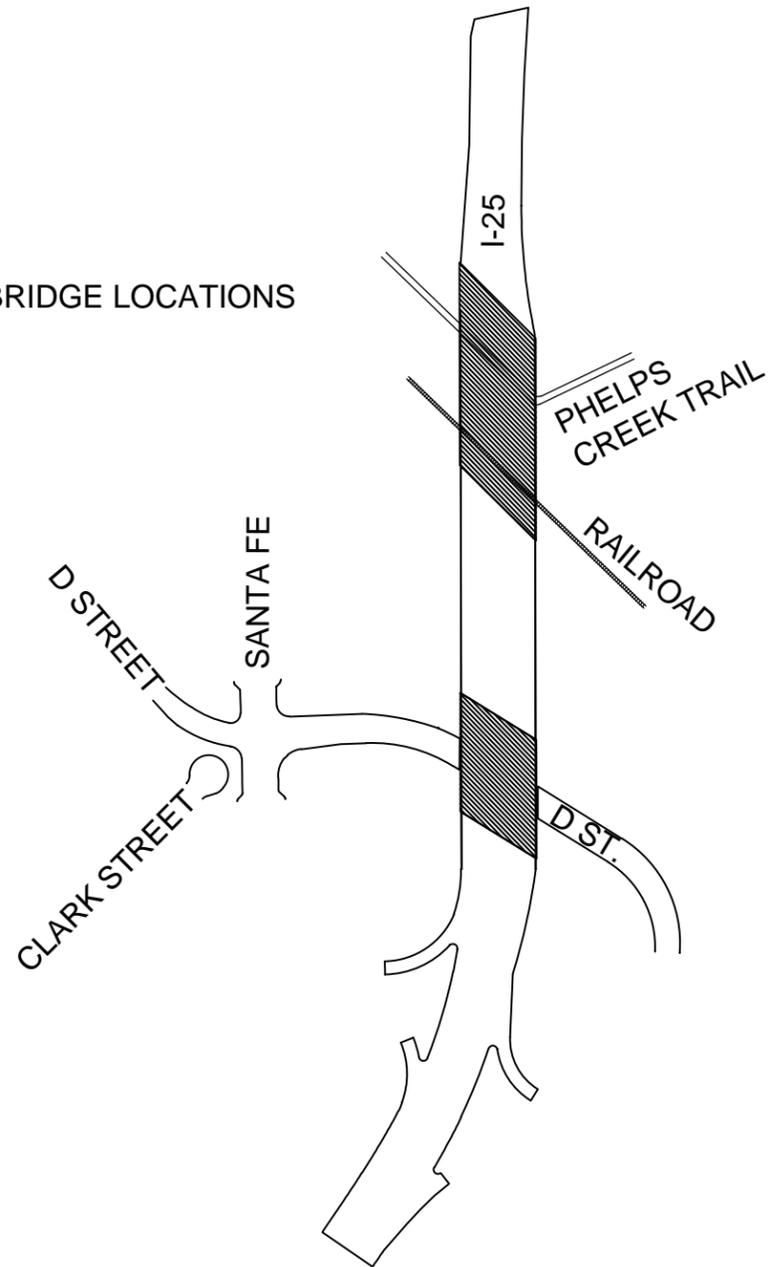
1-25 CORRIDOR OVER D STREET AND CREEK  
TWO BRIDGE OPTION

1-25 CORRIDOR OVER D STREET AND CREEK  
ONE BRIDGE OPTION

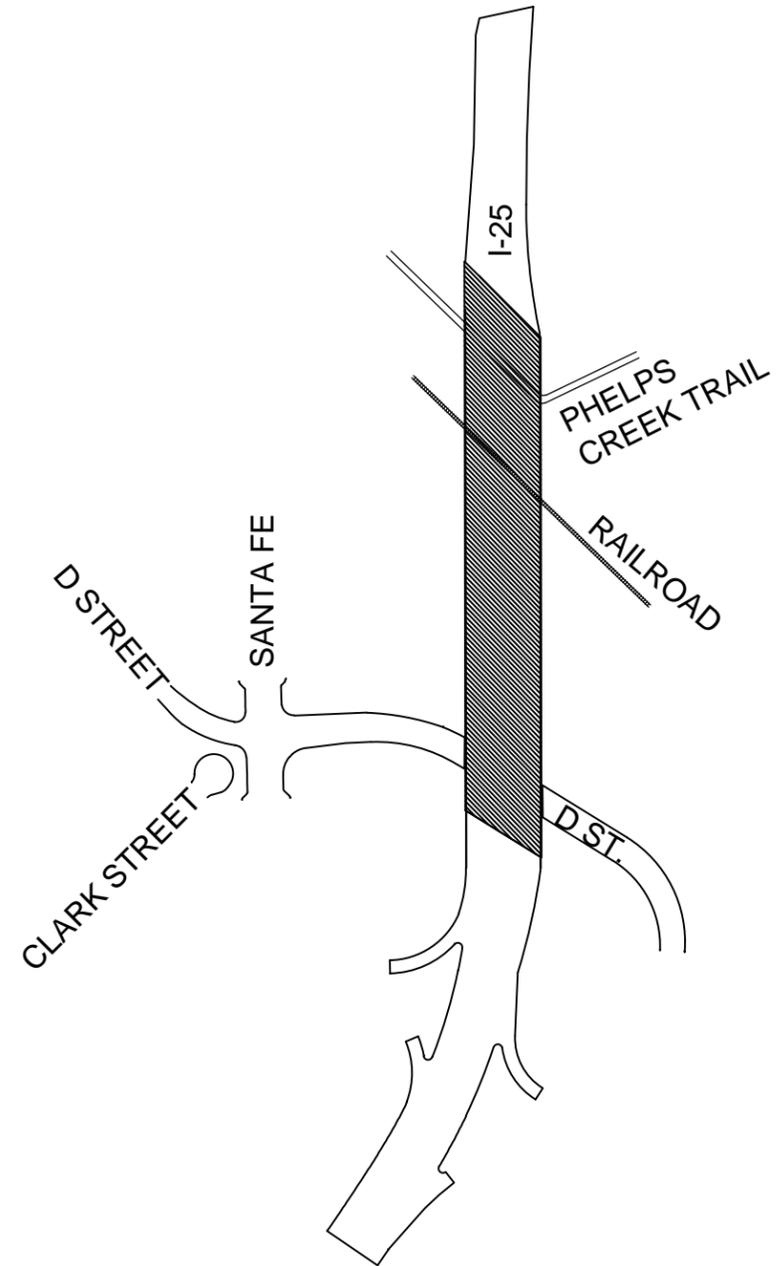
LEGEND:



DENOTES BRIDGE LOCATIONS



North



North

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
 REQUIREMENTS

BRIDGE LOCATION MAP

# LOCATION MAP - BRIDGES



2.0

## ABUTMENTS

ABUTMENTS SHALL BE CONSTRUCTED OF CAST-IN-PLACE OR PRE-CAST CONCRETE WITH A VERTICAL FRACTURED FIN FINISH AND COVERED WITH PIGMENTED STAIN COATING. THE WING WALLS AND THE ABUTMENT WALLS SHALL BE VERTICAL. NO NEW SLOPE PAVING SHALL BE CONSTRUCTED AS PART OF THE ILEX INTERCHANGE BRIDGE ABUTMENTS.

THE WING WALLS SHALL BE IN THE SAME PLANE AS THE BRIDGE RAIL. THE CONTRACTOR MAY CHOOSE TO CONSTRUCT THE ABUTMENT WALL AND WING WALLS AS A FACING FOR STRUCTURAL SUPPORT BEYOND. UNDER THIS OPTION THE APPEARANCE OF THESE WALLS SHALL NOT VARY FROM THESE REQUIREMENTS.

AESTHETIC PANELS MAY BE INSTALLED AFTER ABUTMENT AND WING WALL CONSTRUCTION IS COMPLETE.

DECORATIVE ABUTMENT AND WING WALL PANELS SHALL BE INSTALLED AS DETAILED. SEE BRIDGES - ABUTMENT WALL PANELS.

## COLUMNS

COLUMNS SHALL BE CONSTRUCTED OF SMOOTH, CAST-IN-PLACE OR PRECAST CONCRETE COVERED WITH PIGMENTED STAIN COATING. COLUMNS SHOULD BE FINISHED SMOOTH AND ALL VOIDS FILLED BEFORE APPLYING STAIN. COLUMNS SHALL BE CONSISTENT IN PROPORTION, SHAPE AND FORM WITHIN EACH STRUCTURE AND BETWEEN SEPARATE STRUCTURES. IF TWO STRUCTURES ARE PROPOSED, NO MORE THAN THREE (3) ROWS OF COLUMNS WILL BE PERMITTED PER STRUCTURE. IF ONLY ONE CONTINUOUS STRUCTURE IS PROPOSED, NO MORE THAN FOUR (4) ROWS OF COLUMNS WILL BE PERMITTED.

COLUMNS SHALL INCLUDE A DECORATIVE REVEAL PATTERN. SEE SHEET 3.6 FOR DETAILS ON DECORATIVE REVEAL.

PIER CAPS WILL BE REQUIRED. CAPS SHALL BE CONSISTENT IN SIZE, SHAPE AND FORM, AND HAVE AN ARCHITECTURAL RELATIONSHIP TO COLUMNS. WHERE POSSIBLE, PIER CAPS SHALL BE LOCATED IN THE SAME PLANE AS THE GIRDERS. THE OUTERMOST GIRDER ON EACH SIDE OF THE BRIDGE SHALL BE FLUSH WITH THE PIER CAPS.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

## GIRDER

GIRDER TYPES AT BRIDGE(S) SHALL BE DETERMINED BY THE CONTRACTOR. THE OUTSIDE FACE OF THE GIRDER OR FASCIA PANEL SHALL BE A SMOOTH, FLAT SURFACE. THE PREFERRED GIRDER TYPE SHALL BE A BOX TYPE GIRDER.

THE BOTTOMS OF GIRDERS SHALL BE LOCATED IN THE SAME HORIZONTAL PLANE AS THE BOTTOM OF THE FASCIA PANEL. GIRDERS SHALL BE LOCATED 18 INCHES BEHIND THE OUTSIDE CURB OF THE BRIDGE DECK. SEE PAGE 3.1 FOR DETAIL.

GIRDERS SHALL BE COATED WITH PIGMENTED STAIN IN A SLIGHTLY DARKER COLOR (31090) FROM THE ABUTMENTS, COLUMNS AND BRIDGE RAILS.

## BRIDGE RAIL

BRIDGE RAIL SHALL CONSIST OF A TYPE 10M STEEL RAILS MOUNTED ON A CONCRETE CURB. THE CONCRETE SHALL BE SMOOTH AND COVERED WITH PIGMENTED STAIN COATING (33617) AND THE STEEL SHALL BE GALVANIZED. THE TYPE 10 M STEEL RAILS SHALL CONFORM TO CDOT STANDARDS.

## MEDIAN BARRIER

MEDIAN BARRIER SHALL CONSIST OF A TYPE 7 BARRIER WITH INTEGRAL GLARE SCREEN. MEDIAN BARRIER SHALL BE STAINED TO MATCH THE BRIDGE RAIL CURB (30450).

## APPROVAL

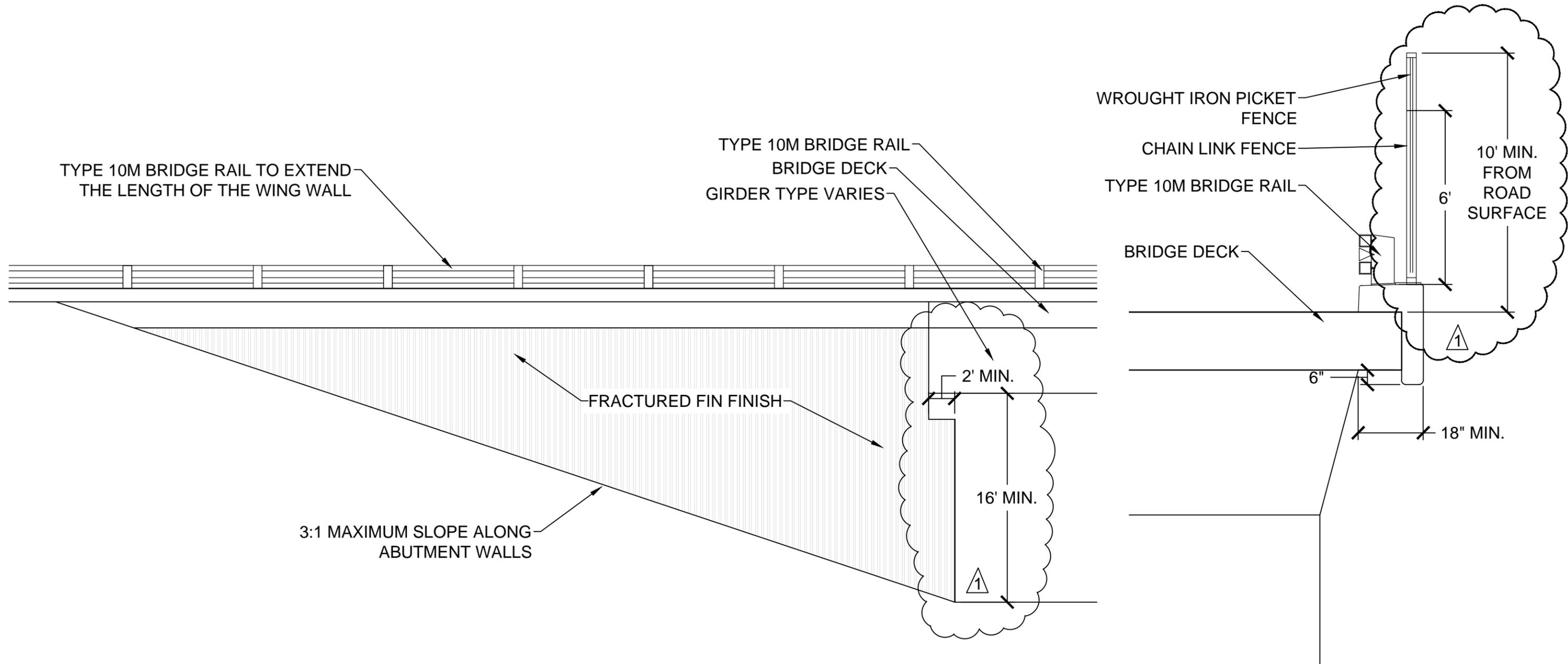
ALL COLUMNS, ABUTMENTS, WING WALLS, GIRDERS, FASCIA PANELS, MEDIAN BARRIER AND PIER CAPS ARE SUBJECT TO APPROVAL.

## OTHER

FOR FENCE INFORMATION SEE SHEET 7.0

FOR RETAINING WALL INFORMATION SEE SHEET 5.0-5.1

GENERAL DESCRIPTION



BRIDGE DECK AND CURB DETAIL (RAILROAD)

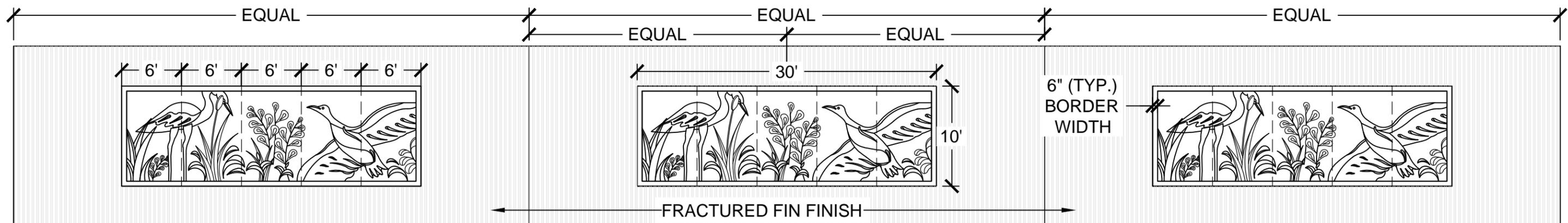
NOTES: ①  
 1. 6' CHAIN LINK FENCE SHALL BE ATTACHED TO THE WROUGHT IRON FENCE.

GENERAL DESCRIPTION

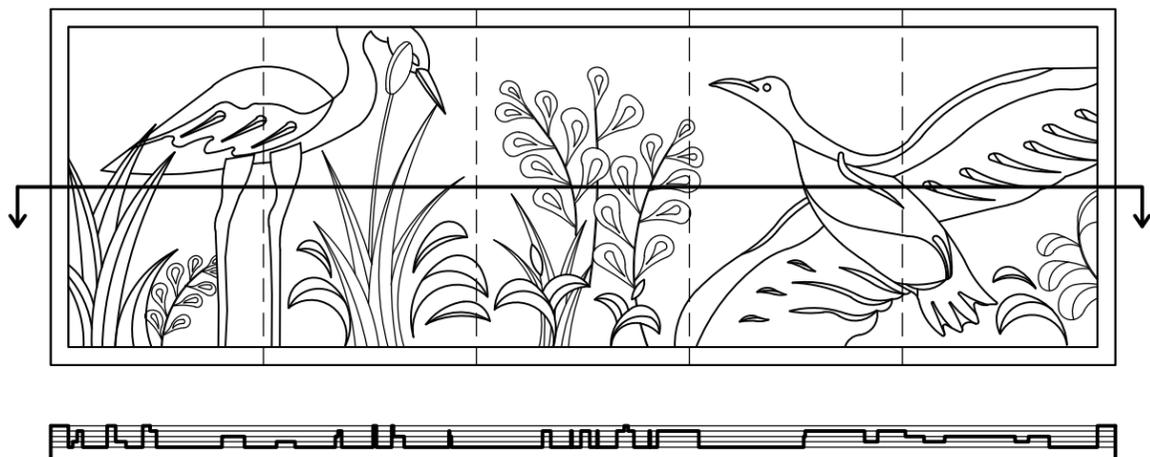
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

# BRIDGES





ABUTMENT WALL ELEVATION WITH PANEL LAYOUT



PANEL SECTION

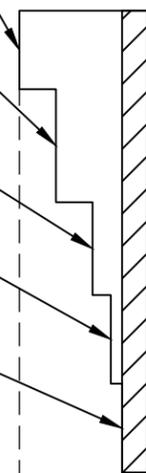
ALL AREAS LABELED A SHALL BE FLUSH WITH PANEL FACE AND SHALL HAVE A LIGHT SAND-BLASTED FINISH

ALL AREAS LABELED B SHALL BE RECESSED 1" FROM PANEL FACE AND SHALL HAVE A BROOM FINISH

ALL AREAS LABELED C SHALL BE RECESSED 2" FROM PANEL FACE AND SHALL HAVE A BROOM FINISH

ALL AREAS LABELED D SHALL BE RECESSED 3" FROM PANEL FACE AND SHALL HAVE A SMOOTH FINISH

ALL AREAS NOT LABELED SHALL BE RECESSED 3 3/8" FROM PANEL FACE AND SHALL HAVE A HEAVY SAND-BLASTED FINISH

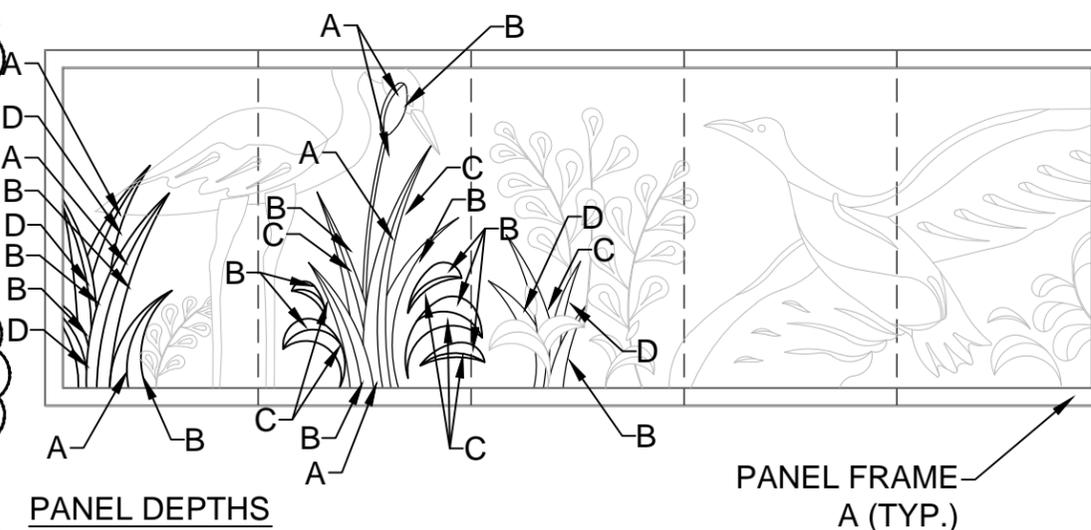
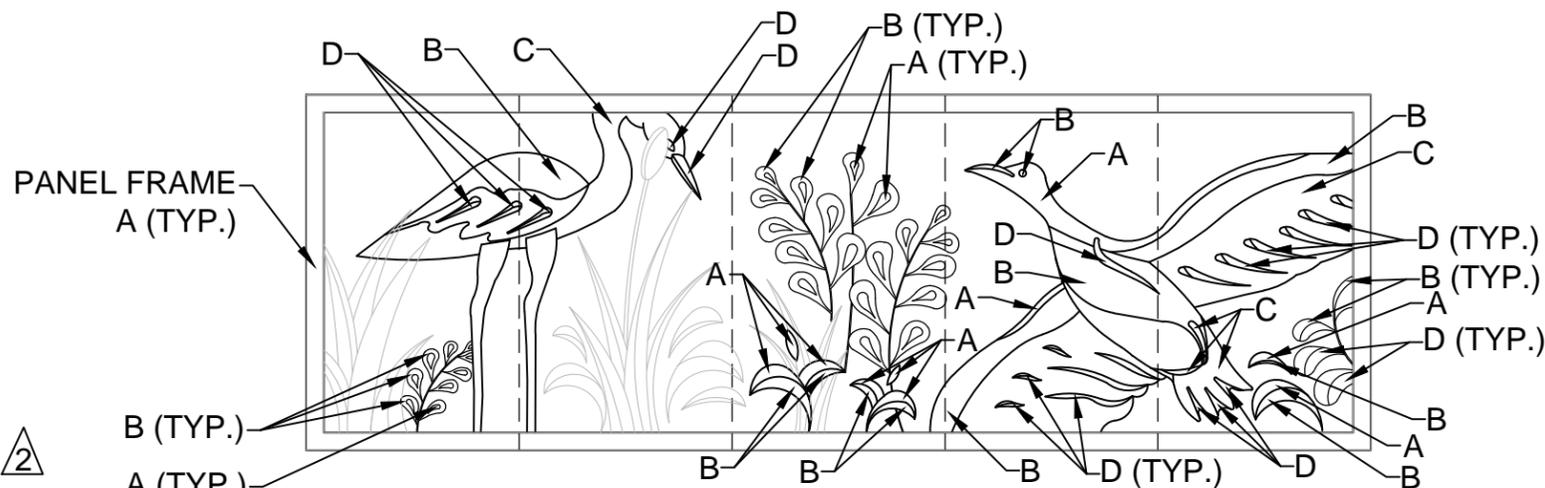


I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

2

NOTES:

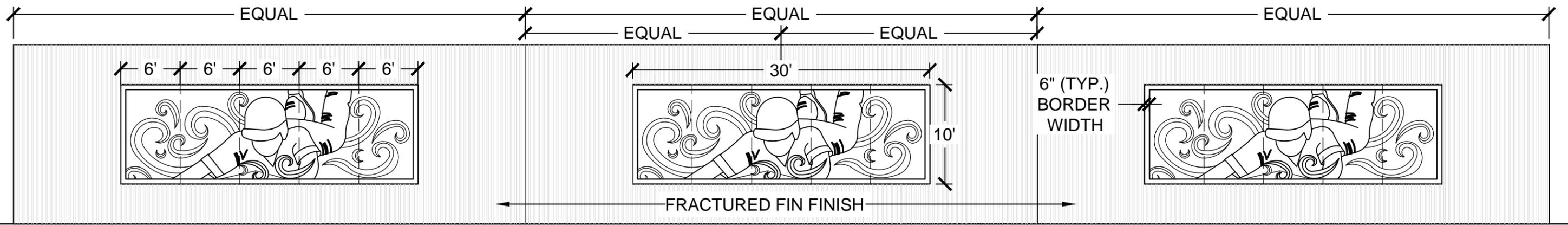
1. COPING WILL BE ALLOWED WHERE THE WALL RETURNS AT THE ABUTMENT CORNERS. COPING DESIGN TO BE APPROVED PRIOR TO CONSTRUCTION.
2. PANEL SIZES DESCRIBED ARE THE PREFERRED SIZE. ALTERNATE PANEL SIZES MAY BE USED IF THE PANELS ADHERE TO THE SAME DESIGN INTENT. PANEL SEAMS SHALL BE KEPT TO A MINIMUM AND CAREFULLY PLACED TO REDUCE VISUAL CLUTTER.
3. PANEL FRAME SHALL BE FLUSH WITH THE PEAK (MOST EXTRUDED POINT) OF THE FRACTURED FIN FINISH.



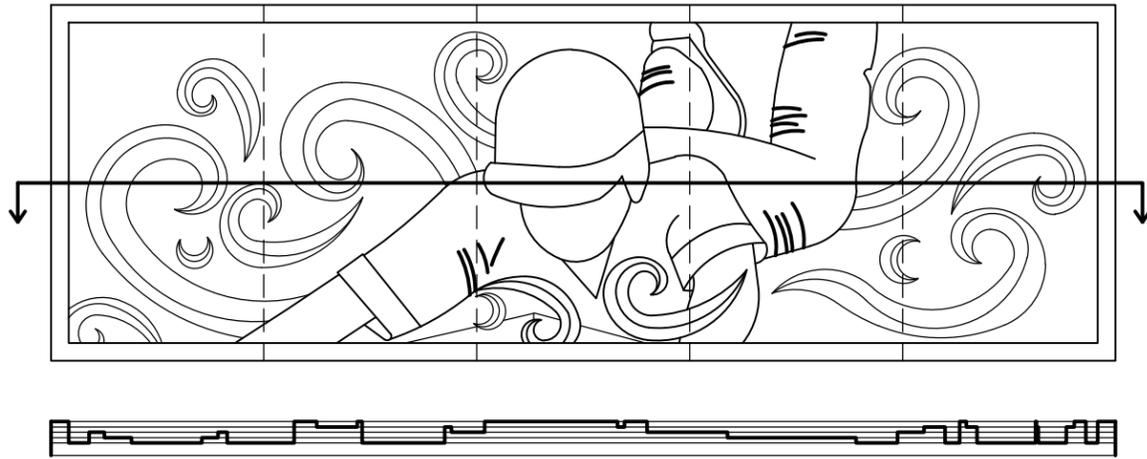
PANEL DEPTHS

NOTE: SEE SHEET 3.4 FOR PANEL DETAILS AND NOTES

ABUTMENT WALL - CREEKSIDE WILDLIFE



ABUTMENT WALL ELEVATION WITH PANEL LAYOUT



PANEL SECTION

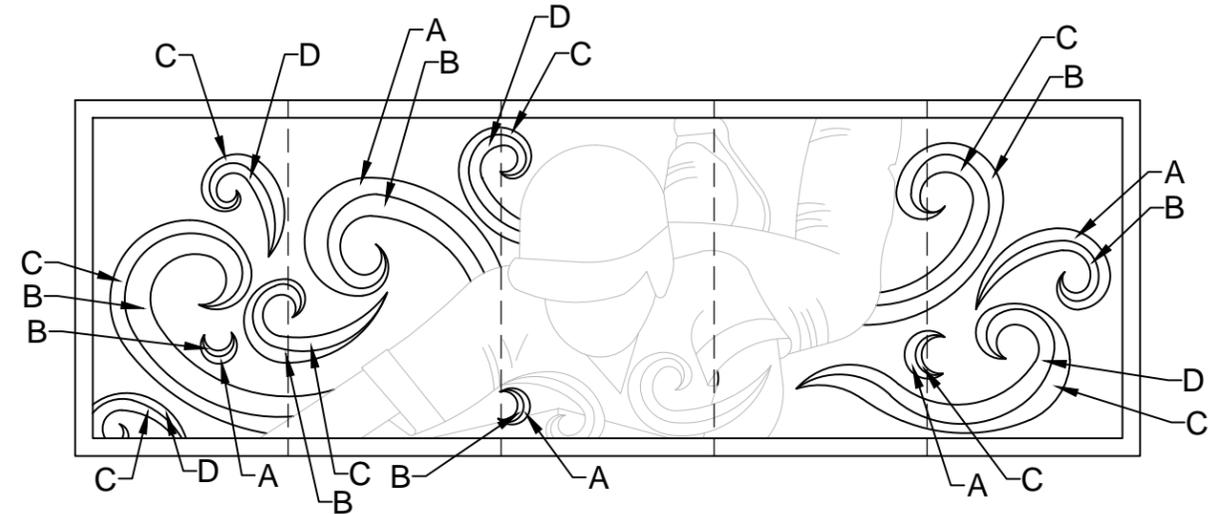
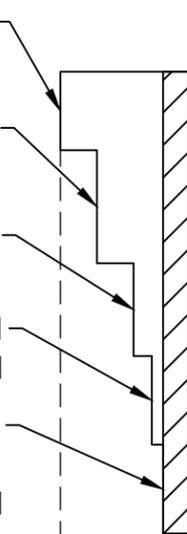
ALL AREAS LABELED A SHALL BE FLUSH WITH PANEL FACE AND SHALL HAVE A LIGHT SAND-BLASTED FINISH

ALL AREAS LABELED B SHALL BE RECESSED 1" FROM PANEL FACE AND SHALL HAVE A BROOM FINISH

ALL AREAS LABELED C SHALL BE RECESSED 2" FROM PANEL FACE AND SHALL HAVE A BROOM FINISH

ALL AREAS LABELED D SHALL BE RECESSED 3" FROM PANEL FACE AND SHALL HAVE A SMOOTH FINISH

ALL AREAS NOT LABELED SHALL BE RECESSED 3 3/8" FROM PANEL FACE AND SHALL HAVE A HEAVY SANDB-BLASTED FINISH



PANEL DEPTHS

NOTE:  
SEE SHEET 3.4 FOR PANEL DETAILS AND NOTES

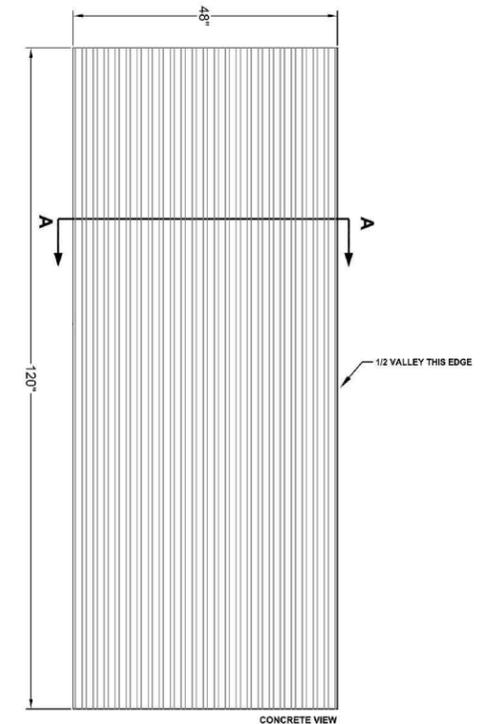
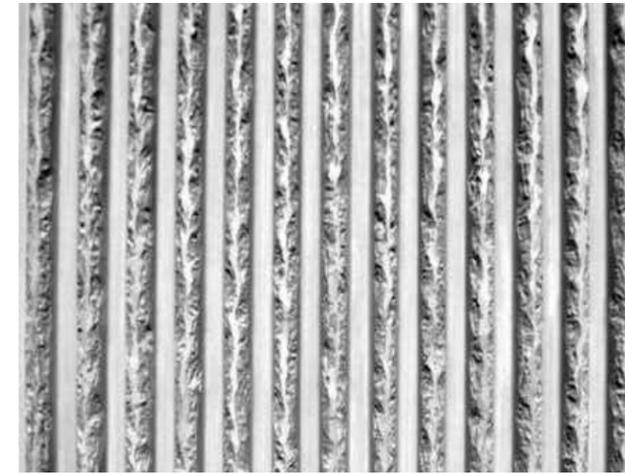
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

ABUTMENT WALL - "SAFE!"

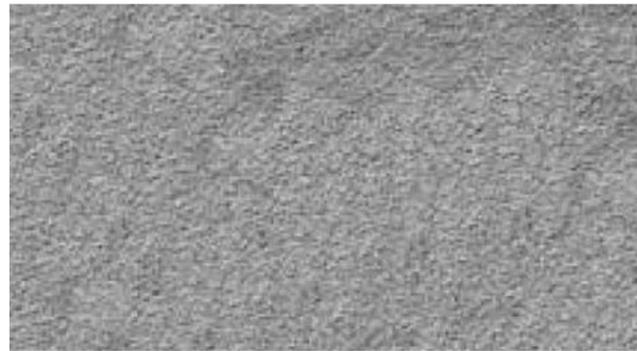
**NOTES:**

1. EACH PANEL HAS A FINISHED SIZE OF 10' HIGH BY 6' LONG OR AS MARKED. PANELS SHALL BE EQUALLY SPACED IN BOTH HEIGHT AND LENGTH OF FINAL ABUTMENT WALL.
2. GRAPHIC FORM LINER DEPTHS ARE MEASURED FROM PANEL/REVEAL FACE (TYP.).
3. BACKGROUND OF EACH PANEL SHALL BE A HEAVY SANDBLAST TEXTURE.
4. LETTER A IS FLUSH TO FRONT PANEL FACE, LETTER B IS RECESSED 1" FROM THE PANEL FACE, LETTER C IS RECESSED 2" FROM THE PANEL FACE, LETTER D IS RECESSED 3" FROM THE PANEL FACE, LETTER E OR AREAS NOT LABELED ARE 3 3/8" FROM THE PANEL FACE.
5. ALL FORMLINER EDGES ARE TO BE TAPERED 10-15 DEGREES MINIMUM. A SAMPLE TEST PANEL SHALL BE CREATED AND IS SUBJECT TO APPROVAL.
6. PANELS ARE TO BE PAINTED OR STAINED AS DESCRIBED IN CHAPTER 1 OF THIS DOCUMENT.
7. FORM LINER MANUFACTURER SHALL HAVE A MINIMUM OF 5 YEARS IN BUSINESS AND PROVIDE EXAMPLES OF SIMILAR WORK.

**FRACTURED FIN FINISH**



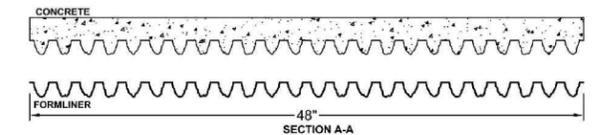
**LIGHT SAND-BLAST FINISH**



**HEAVY SAND-BLAST FINISH**



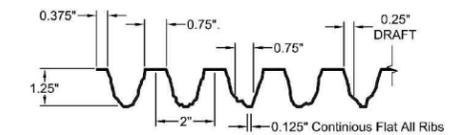
**BROOM FINISH**



SURFACE A SHALL CONSIST OF A LIGHT SANDBLAST FINISH WITH A 0.0625" MINIMUM DEPTH AND NO AGGREGATE EXPOSED.

SURFACE E (NOT LABELED) SHALL CONSIST OF A HEAVY SANDBLAST FINISH WITH A 0.375" MINIMUM DEPTH AND SOME AGGREGATE EXPOSED.

SURFACE B AND C SHALL CONSIST OF A HEAVY SANDBLAST FINISH WITH A 0.375" MINIMUM DEPTH AND SOME AGGREGATE EXPOSED.



**TOOLING EXAMPLES AND NOTES:**

FORM PANELS SHALL HAVE HAND TOOLED QUALITY. SECTION SHOWN ON THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY TO CONVEY THE DESIRED DEPTH OF THE PANEL.

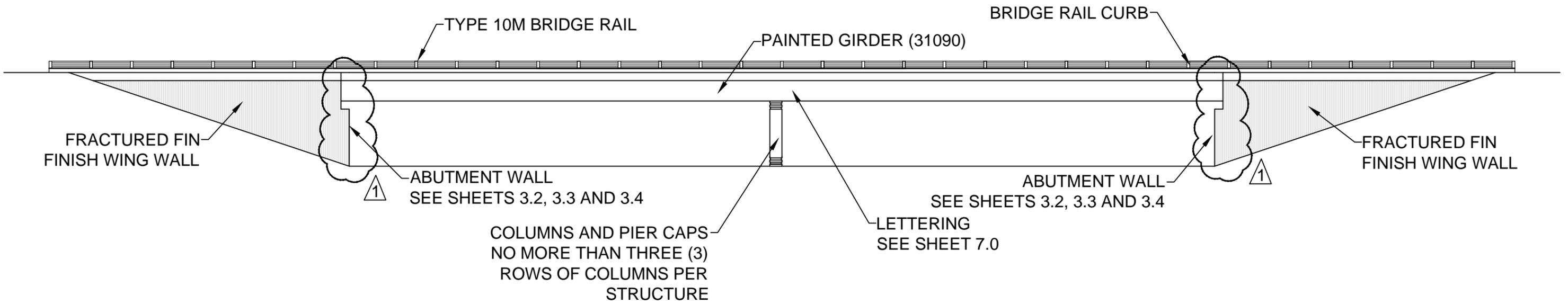
AN ARTIST SHALL BE INVOLVED WITH THE CREATION OF THE FORMLINER. ANY 'BOXY' SHAPES WILL NOT BE ACCEPTED. SAMPLE TEST PANELS SHALL BE CREATED AND SHOW SUFFICIENT AREA TO DEMONSTRATE THE QUALITY OF THE TOOLING PROCESS AND BE SUBJECT TO APPROVAL.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

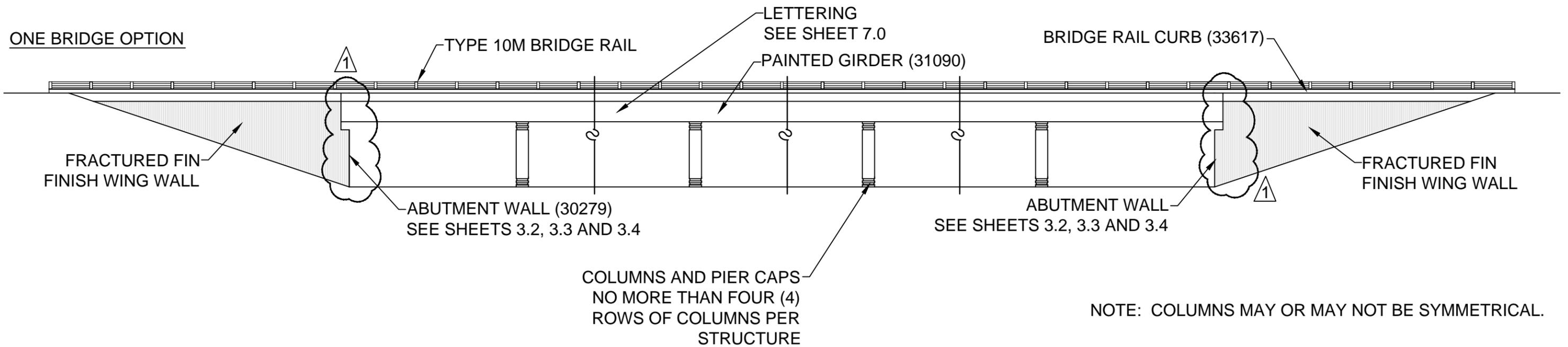


ABUTMENT WALL - NOTES AND DETAILS

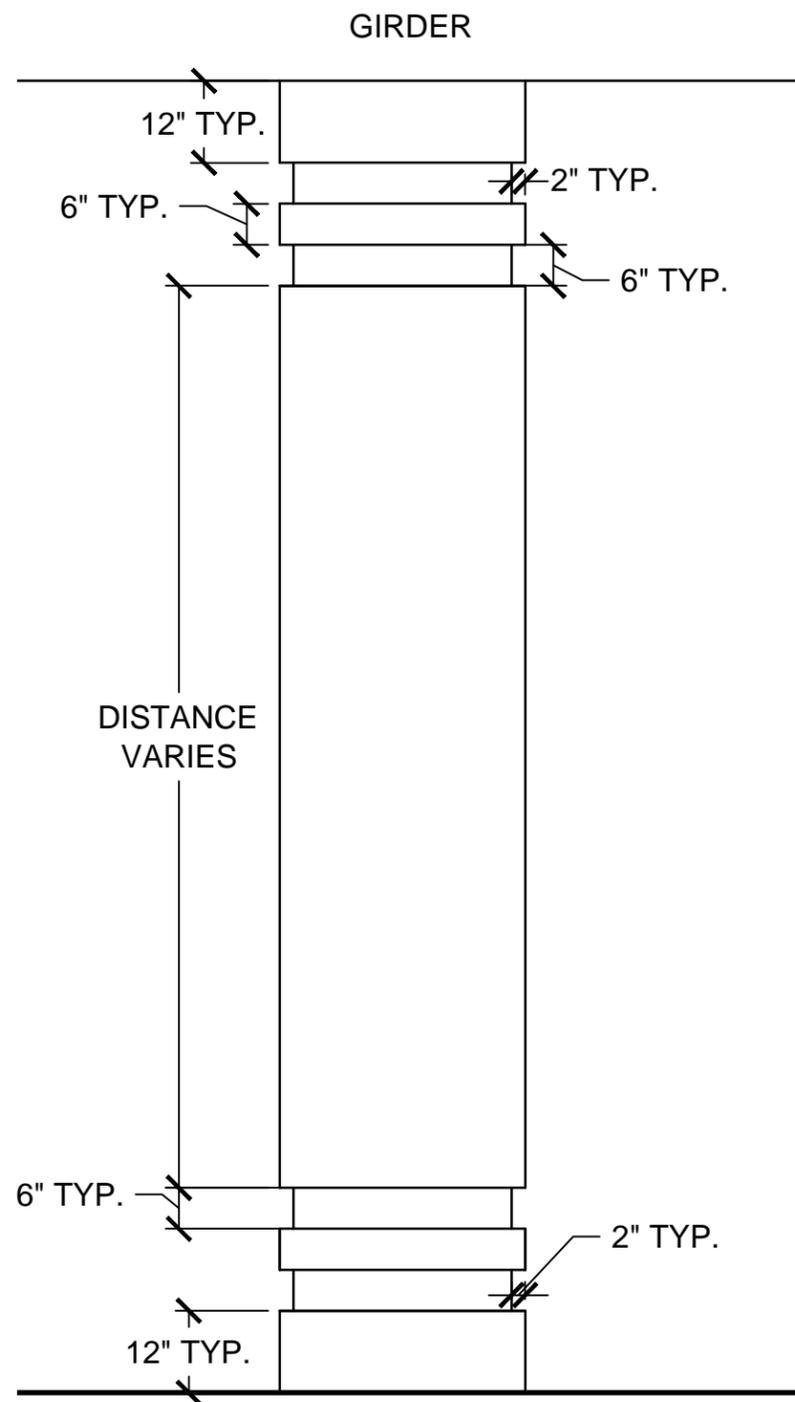
TWO BRIDGE OPTION



ONE BRIDGE OPTION



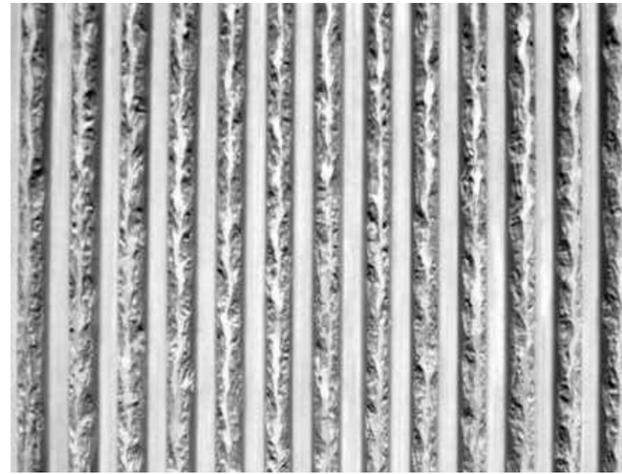
NOTE: COLUMNS MAY OR MAY NOT BE SYMMETRICAL.



DECORATIVE REVEAL PATTERN ON COLUMNS

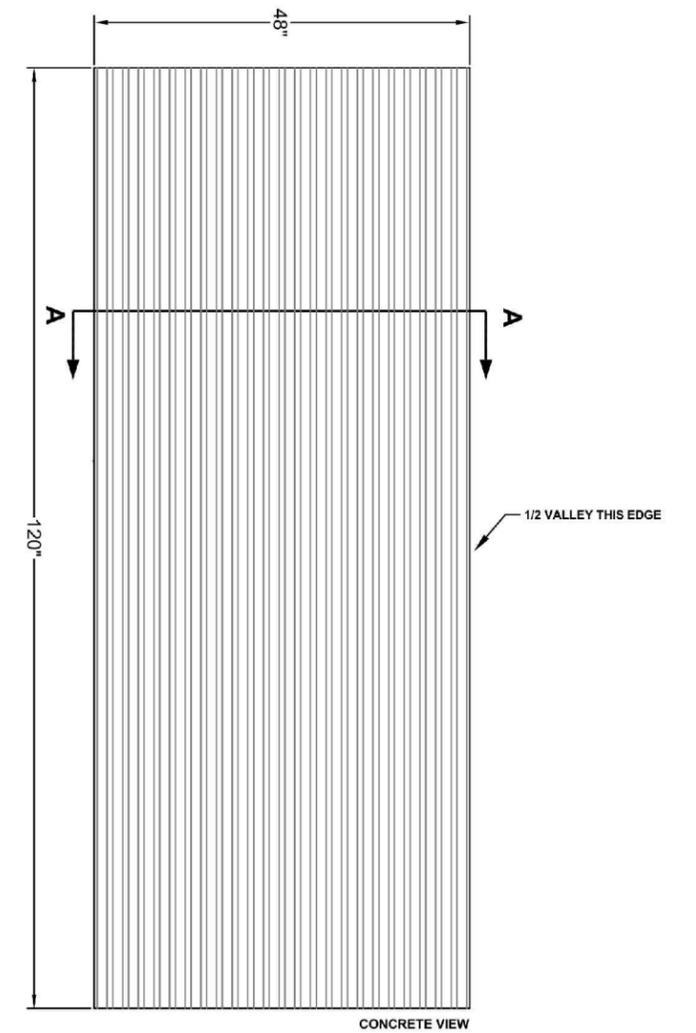
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

FRACTURED FIN FINISH

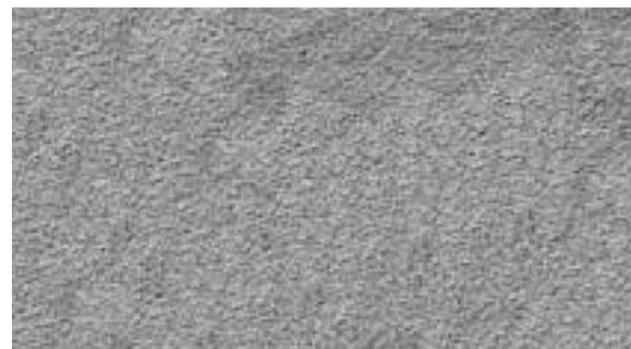


NOTES:

- BRIDGE ABUTMENT WALLS AND WING WALLS SHALL HAVE A VERTICAL FRACTURED FIN FINISH.

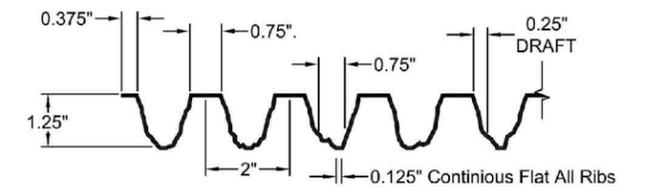
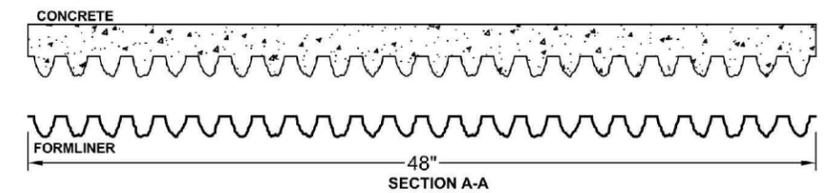


LIGHT SANDBLAST FINISH

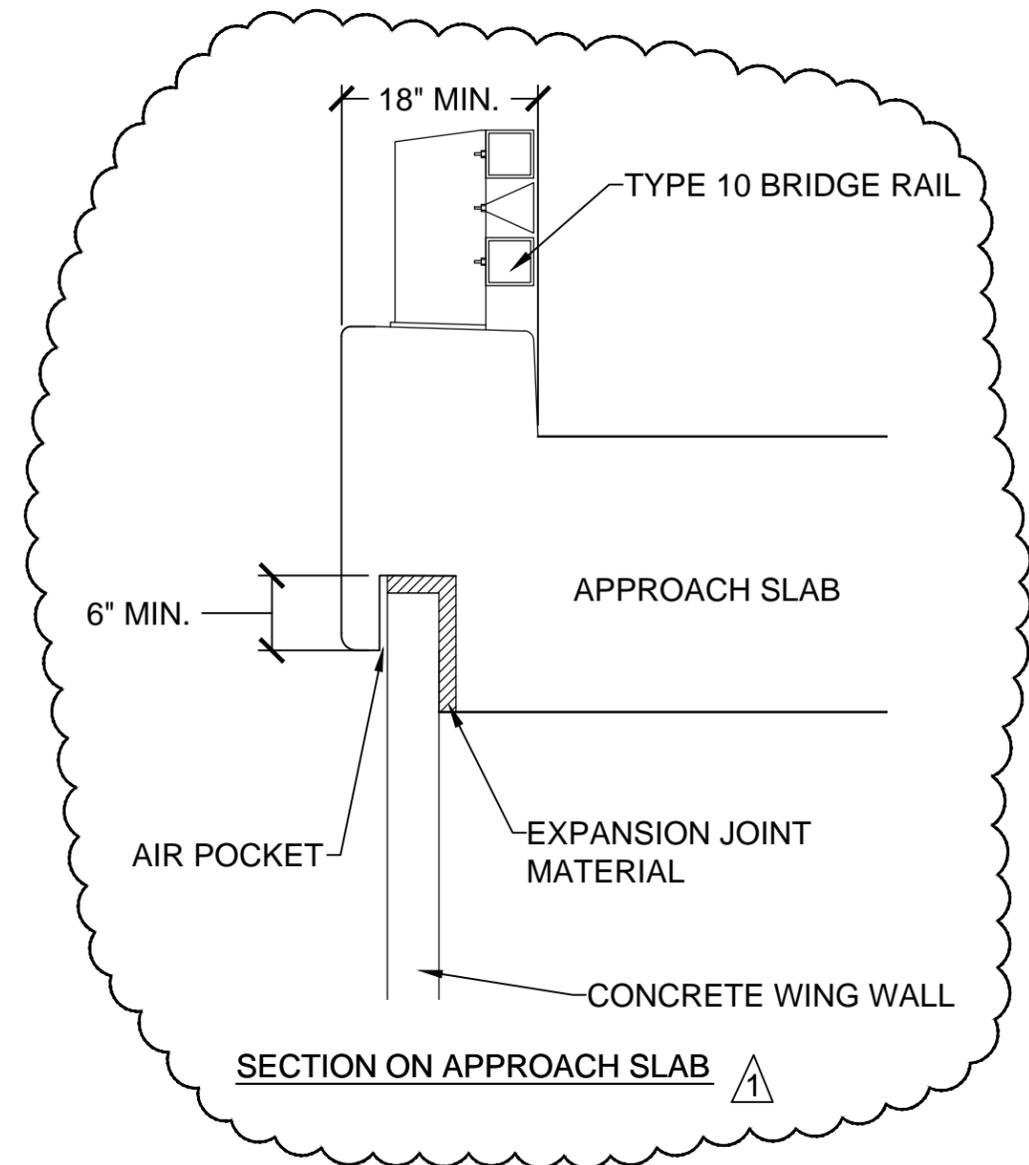
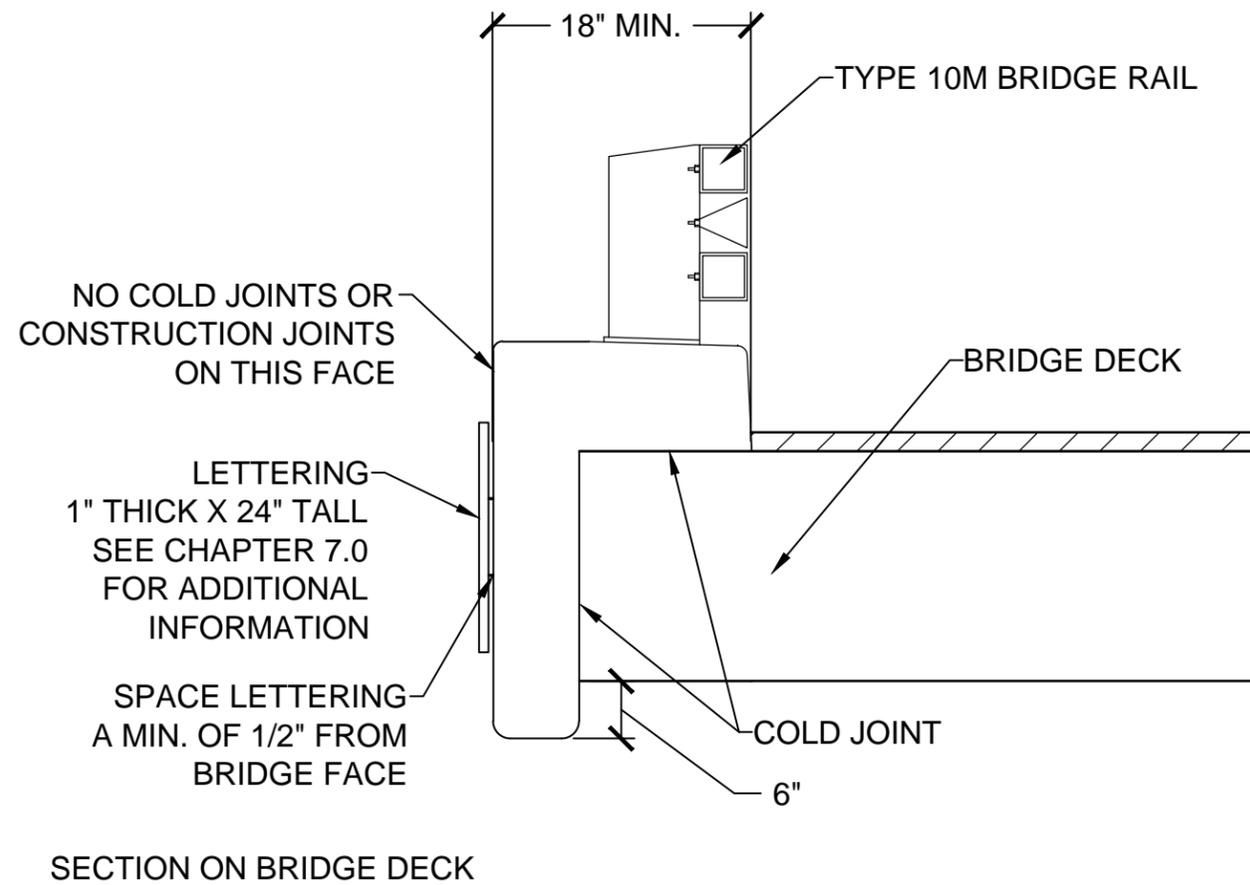


NOTES:

- COLUMNS SHALL HAVE A LIGHT SANDBLAST FINISH.



DECORATIVE RELIEF ON COLUMNS  
FRACTURED FIN FINISH ON BRIDGE ABUTMENTS AND WING WALLS



**BRIDGE RAILS  
OVER LOCAL STREETS**

BRIDGE RAIL SHALL CONSIST OF A TYPE 10M STEEL RAIL ON A CONCRETE CURB. THE CONCRETE SHALL BE SMOOTH AND COVERED WITH A PIGMENTED STAIN COATING AND THE STEEL SHALL BE GALVANIZED.

**OVER RAILROAD TRACKS**

BRIDGE RAILS OVER RAILROAD TRACKS SHALL HAVE A WROUGHT IRON PEDESTRIAN RAIL AND VINYL COATED TIGHT MESH CHAIN LINK FENCING. THE CHAIN LINK SHALL BE MOUNTED ON THE ROADWAY SIDE OF THE THE METAL PEDESTRIAN RAIL. THE BRIDGE RAIL ACROSS THE TRACKS AND A MINIMUM OF 25' PAST THE OUTSIDE TRACK CENTERLINE SHALL BE ON TOP OF A GALVANIZED CDOT STANDARD TYPE 10M BRIDGE RAIL. IN ADDITION THERE SHALL BE AN 8' WROUGHT IRON PICKET FENCE ON THE OUTSIDE OF THE CHAIN LINK FENCE TO HIDE THE CHAIN LINK. SEE SHEET 7.0 FOR ADDITIONAL INFORMATION.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

BRIDGE RAIL AND GIRDER SECTION

**HIGHWAY LIGHTING SHALL BE ALUMINUM HIGH MAST LIGHTING**

THE POLES SHALL BE CONSTRUCTED OF METAL AND BE OF A CARVED ONE-PIECE TAPERED DAVIT STYLE. POLES SHALL BE 35' TALL. THE ARMS SHALL BE INTEGRAL WITH THE POLE. THE POLE SHALL HAVE A FULL BASE COVER. ALL LIGHTING AND LIGHT POLES SHALL BE THE SAME STYLE AND MANUFACTURE THROUGHOUT THE PROJECT.

ALL HIGHWAY LIGHTING SHALL BE IN COMPLIANCE WITH BLACK HILLS ENERGY AND THE CITY OF PUEBLO STANDARDS.

THE LUMINARIES SHALL BE COBRA STYLE, WITH HOUSING CONSTRUCTED OF ALUMINUM.

THE POLES, ARMS AND LUMINARIES SHALL BE GALVANIZED AND THEN POWDER COATED IN ACCORDANCE WITH COLOR SELECTIONS IN CHAPTER 1. THE PAINT SHALL BE DURABLE AND SUITABLE FOR APPLICATION ON METAL.

**LIGHTING UNDER BRIDGES**

ALL LIGHTING UNDER BRIDGES SHALL BE IN COMPLIANCE WITH BLACK HILLS ENERGY AND THE CITY OF PUEBLO STANDARDS.

**SANTA FE AND D-STREET LIGHTING SHALL BE ALUMINUM HIGH MAST LIGHTING.**

THE POLES SHALL BE CONSTRUCTED OF METAL AND BE OF A CURVED ONE-PIECE TAPERED DAVIT STYLE; THE ARMS SHALL BE INTEGRAL WITH THE POLE. THE POLE SHALL HAVE A FULL BASE COVER. ALL LIGHTING AND LIGHT POLES SHALL BE THE SAME STYLE AND MANUFACTURE THROUGHOUT THE PROJECT.

THE LUMINARIES SHALL BE A BULB STYLE, WITH HOUSING CONSTRUCTED OF ALUMINUM.

THE POLES, ARMS AND LUMINARIES SHALL BE GALVANIZED AND THEN POWDER COATED IN ACCORDANCE WITH COLOR SELECTIONS IN CHAPTER 1. THE PAINT SHALL BE DURABLE AND SUITABLE FOR APPLICATION ON METAL.

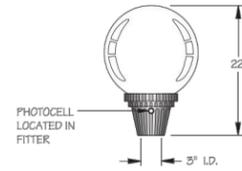
**I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS**

**SANTA FE AND D STREET LIGHTING**



STOCK # 1505-1070  
CATALOG # LG16-WP/PT/70HPS-120V/  
BLK/PC/MEDIUM BASE.

REV. 3  
CS-1642



**SPECIFICATIONS:**

LUMINAIRE: 16" DIA. OPAL HIGH IMPACT, SEAMLESS POLYCARBONATE DIFFUSER WITH CORROSION RESISTANT CAST ALUMINUM CONSTRUCTION FITTER.

LAMPHOLDER: MEDIUM BASE PORCELAIN.

LAMP: 70 W. H.P.S. (BY OTHERS)

BALLAST: H.P.F.C. W.A. AUTOTRANSFORMER -20 STARTING TEMP. (120 VOLTAGE)

FINISH: POLYESTER POWDER COAT (COLOR: BLACK TEXTURED, RAL-9005-T.)

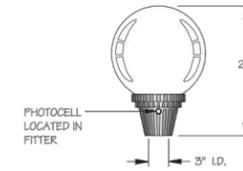
NOTES: PHOTOCELL LOCATED IN LUMINAIRE FITTER.

SCALE: 1" = 1'-0"



STOCK # 1505-1100  
CATALOG # LG16-WP/PT/100HPS-120V/  
BLK/PC/MOGLU BASE.

REV. 2  
CS-1643



**SPECIFICATIONS:**

LUMINAIRE: 16" DIA. OPAL HIGH IMPACT, SEAMLESS ACRYLIC DIFFUSER WITH CORROSION RESISTANT CAST ALUMINUM CONSTRUCTION FITTER.

LAMPHOLDER: MOGLU BASE PORCELAIN.

LAMP: 100 W. H.P.S. (BY OTHERS)

BALLAST: H.P.F.C. W.A. AUTOTRANSFORMER -20 STARTING TEMP. (120 VOLTAGE)

FINISH: POLYESTER POWDER COAT (COLOR: BLACK TEXTURED, RAL-9005-T.)

NOTES: PHOTOCELL LOCATED IN LUMINAIRE FITTER.

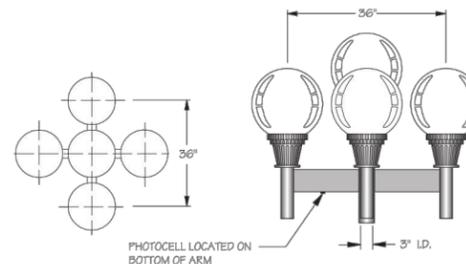
SCALE: 1" = 1'-0"

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STOCK # 1505-5507  
CATALOG # LG16-WP/XO-5-90/70HPS-120V/  
BLK/PC/MEDIUM BASE.

REV. 3  
CS-1649



**SPECIFICATIONS:**

LUMINAIRE: (5) 16" DIA. OPAL HIGH IMPACT, SEAMLESS ACRYLIC DIFFUSER WITH CORROSION RESISTANT CAST ALUMINUM CONSTRUCTION FITTER.

LAMPHOLDER: MEDIUM BASE PORCELAIN.

LAMP: 70 W. H.P.S. (BY OTHERS)

BALLAST: H.P.F.C. W.A. AUTOTRANSFORMER -20 STARTING TEMP. (120 VOLTAGE)

FINISH: POLYESTER POWDER COAT (COLOR: BLACK TEXTURED, RAL-9005-T.)

NOTES: PHOTOCELL LOCATED IN ARM.

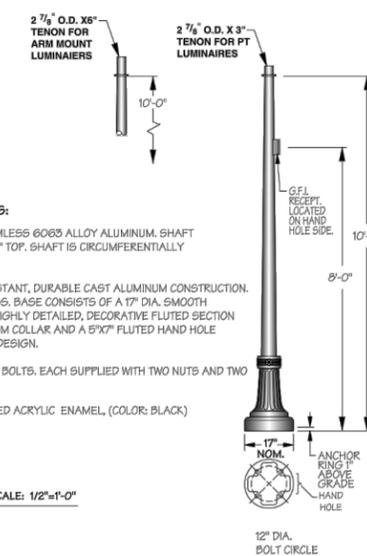
SCALE: 3/4" = 1'-0"

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STOCK # 1656-1010  
CATALOG # 7-1025T-10/BLK/PC/GFI-AB

REV. 1  
CS-1650



**SPECIFICATIONS:**

SHAFT: SPUN TAPERED FROM SEAMLESS 6063 ALLOY ALUMINUM. SHAFT HAS 5" BUTT TAPERING TO 3" TOP. SHAFT IS CIRCUMFERENTIALLY WELDED TO BASE.

BASE: ONE PIECE CORROSION RESISTANT, DURABLE CAST ALUMINUM CONSTRUCTION. MINIMUM .210 WALL THICKNESS. BASE CONSISTS OF A 17" DIA. SMOOTH TAPERED BOTTOM SECTION, HIGHLY DETAILED, DECORATIVE FLUTED SECTION A DECORATIVE CAST ALUMINUM COLLAR AND A 5"X3" FLUTED HAND HOLE COVER CONTOURED TO BASE DESIGN.

ANCHORAGE: (4) 3/4"x24" ANCHOR BOLTS. EACH SUPPLIED WITH TWO NUTS AND TWO WASHERS.

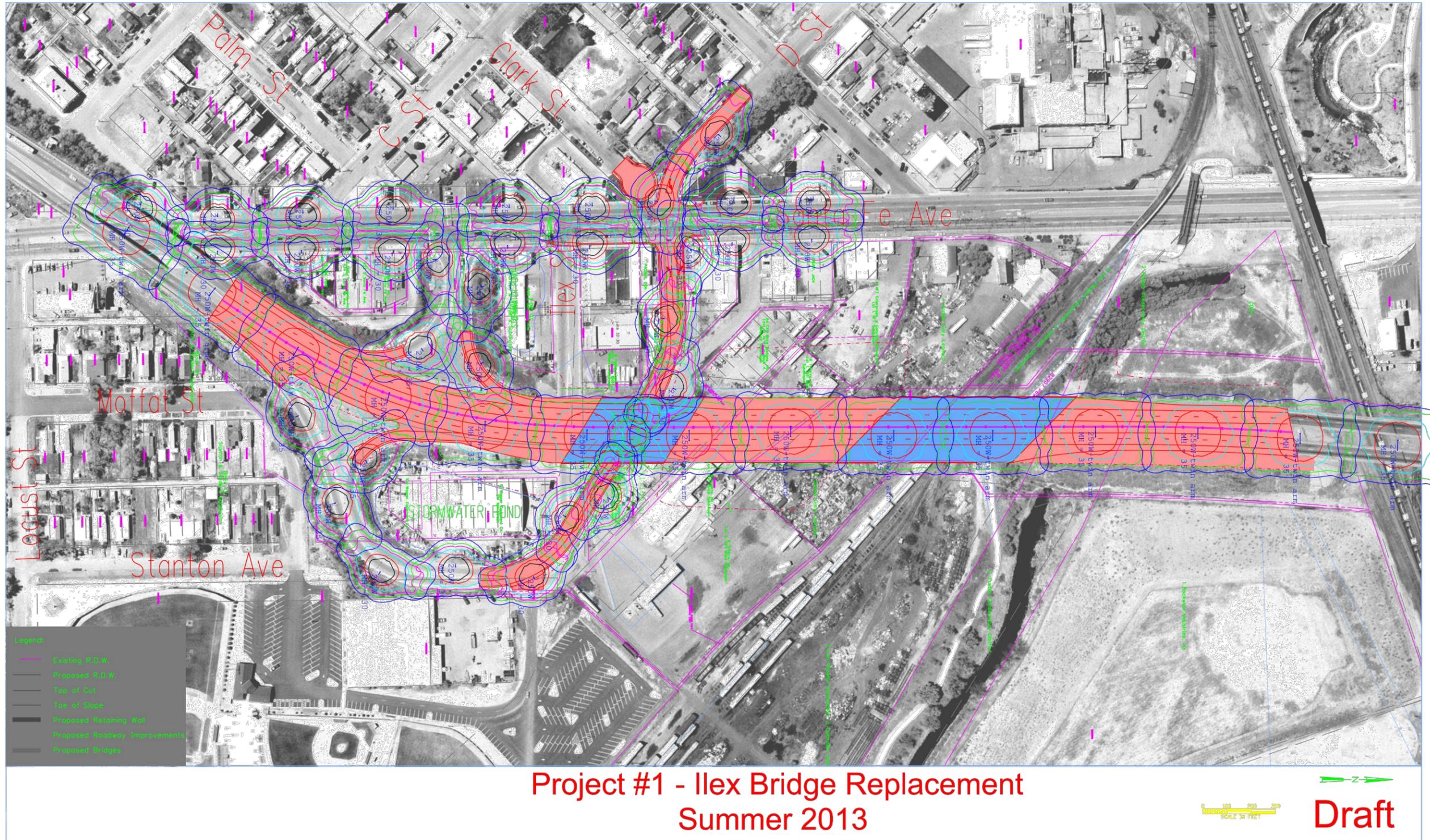
FINISH: ELECTROSTATICALLY APPLIED ACRYLIC ENAMEL, (COLOR: BLACK)

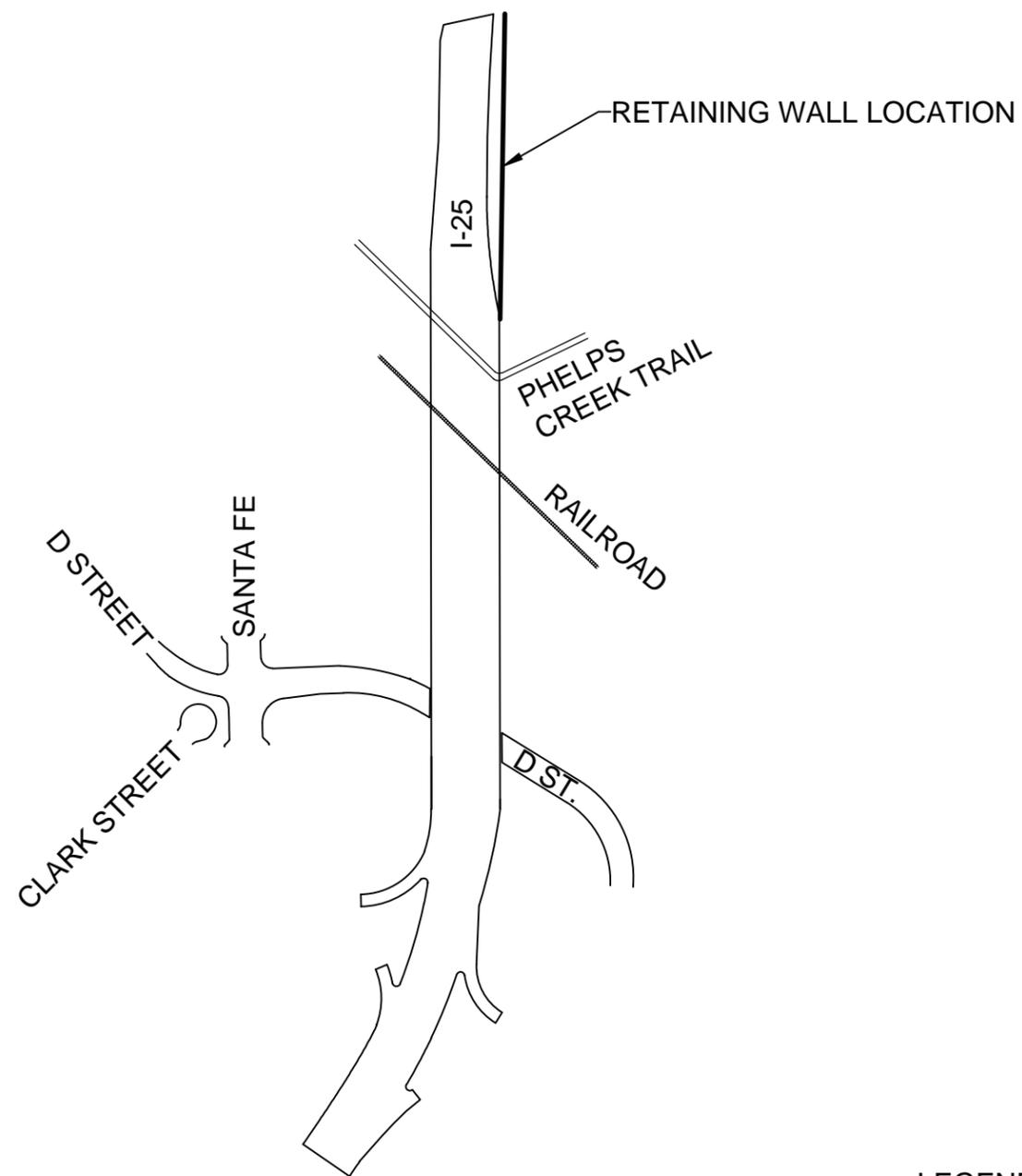
SCALE: 1/2" = 1'-0"

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**SANTA FE AND D STREET LIGHTING**





LEGEND:

————— DENOTES RETAINING WALL LOCATIONS

# LOCATION MAP - RETAINING WALLS



### RETAINING WALL FACING

ALL RETAINING WALLS THROUGHOUT THIS PROJECT SHALL COMPLY WITH THESE ARCHITECTURAL REQUIREMENTS. THE WALL FACING SHALL BE A CAST-IN-PLACE OR PRECAST CONCRETE WITH A FRACTURED FIN FINISH AS DESCRIBED IN THIS SECTION. ALL WALL FACING SHALL BE OF A CONSISTENT TYPE WITHIN ANY CONTINUOUS WALL SECTION. WALL FACING SHALL BE INSTALLED VERTICALLY (PLUS OR MINUS 1/2" IN 10') AND SHALL BE CAPPED WITH A CAST-IN-PLACE OR PRECAST CONCRETE CAP. WALL FACING (30279) AND CAP (30450) SHALL BE COLORED WITH PIGMENTED SEALER.

ALL RETAINING WALLS THROUGHOUT THIS PROJECT SHALL HAVE CDOT STANDARD 42" HIGH GALVANIZED CHAIN LINK FENCE VINYL COATED BLACK WITH TOP AND BOTTOM TENSION WIRE AND TWISTED CHAIN LINK ENDS TOP AND BOTTOM INSTALLED AT THE TOP OF WALL AND BEHIND THE RETAINING WALL CAP.

### RETAINING WALL SUPPORT STRUCTURE

THE SUPPORT STRUCTURE (RETAINING THE EARTH) CAN BE ANY CONVENTIONAL TYPE WALL, CAST-IN-PLACE WALL, MECHANICAL STABILIZED EARTH, SHEET PILING, CONCRETE CAISSON, H-PILES, ETC.

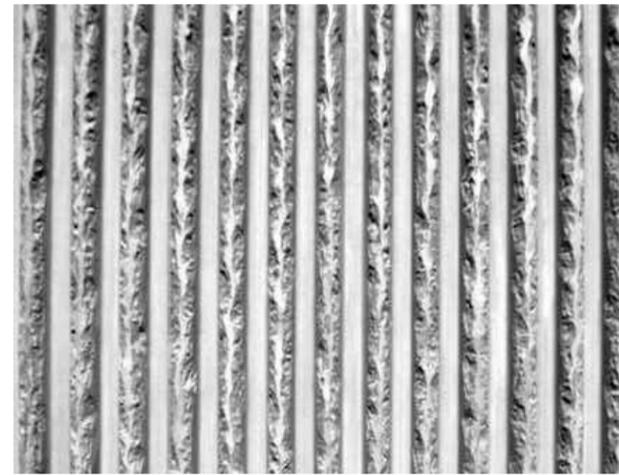
### BRIDGE ABUTMENTS AND BRIDGE WING WALLS

BRIDGE ABUTMENTS AND WING WALLS ARE NOT CONSIDERED PART OF THIS SECTION AND ARE COVERED UNDER THE BRIDGE SECTION.

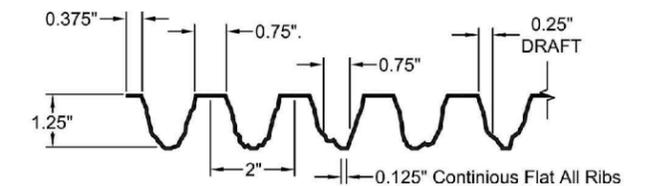
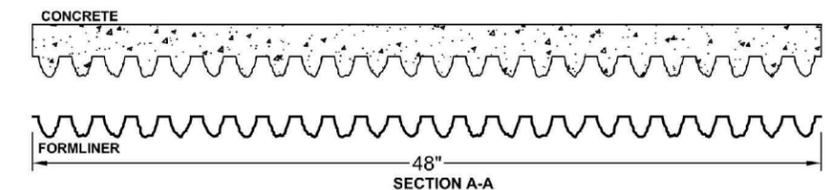
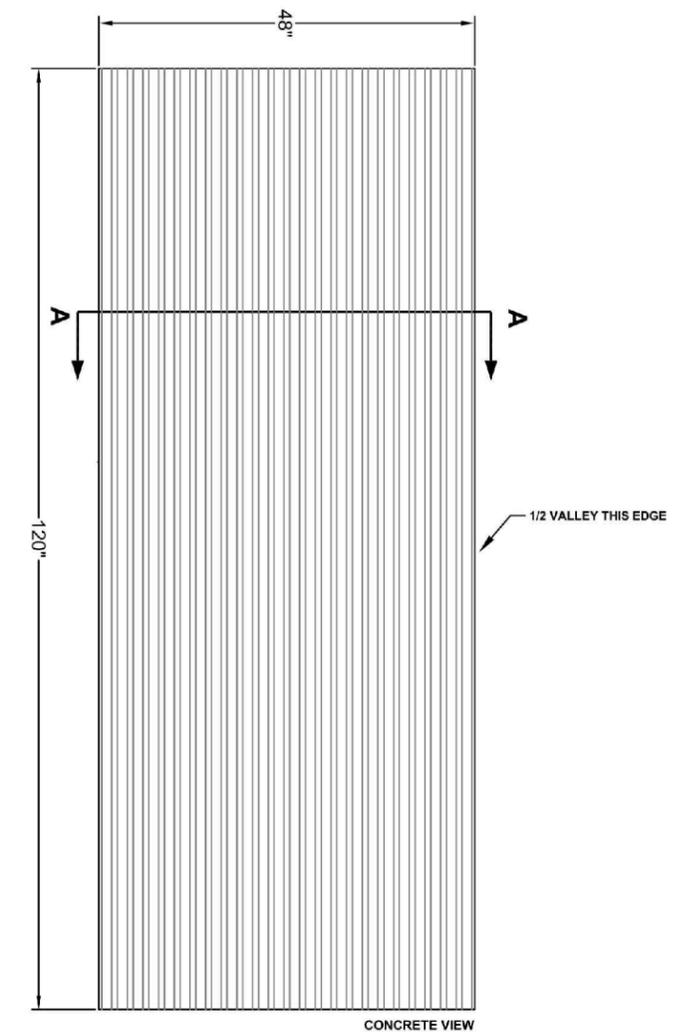
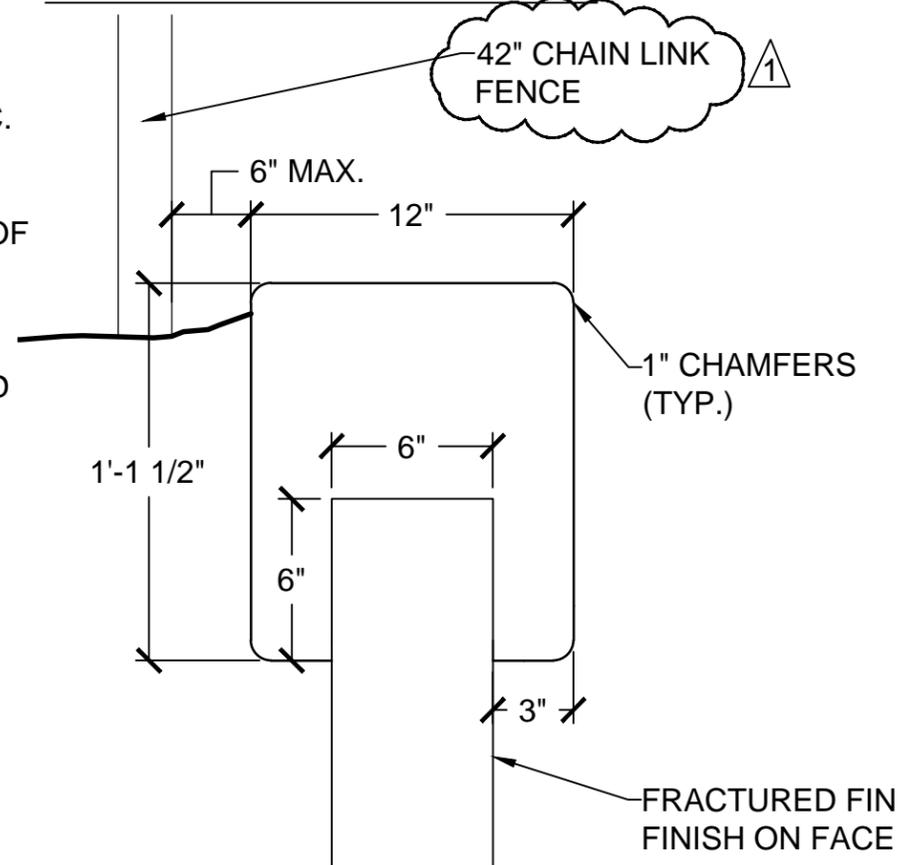
### RETAINING WALL CAP

RETAINING WALL CAP SHALL HAVE THE SAME HEIGHT AS A STANDARD CDOT TYPE 10M BRIDGE RAIL CURB.

### FRACTURED FIN FINISH



### RETAINING WALL CAP WITH FENCE



THE I-25 CORRIDOR AT THE ILEX INTERCHANGE SHALL HAVE SIGNAGE THAT EASILY CONVEYS INFORMATION. THIS SIGNAGE AND THEIR SIGN STRUCTURES SHALL HAVE A UNIFORM APPEARANCE. THE VARIOUS TYPES OF STRUCTURES SHALL HAVE A COMMON THEME THAT RESULTS IN A UNIFORM APPEARANCE OF THE VARIOUS TYPES OF STRUCTURES.

**SIGNAGE**

SIGNS SHALL BE CONSTRUCTED OF ALUMINUM IN ACCORDANCE WITH CDOT STANDARDS.

**SIGN BRIDGES**

SIGN BRIDGES SHALL BE CONSTRUCTED OF STEEL AND BE OF A VERTICAL SINGLE POST MONOTUBE STYLE IN ACCORDANCE WITH CDOT STANDARDS. THE SIGN CANTILEVERS SHALL BE CONSTRUCTED IN 2 PIECES; THE SPLICE SHALL BE LOCATED AT THE END OF THE HORIZONTAL MEMBER, ADJACENT TO THE RAISED PART OF THE STRUCTURE. SEE CHAPTER 1 FOR PAINT COLOR.

**SIGN CANTILEVERS**

SIGN CANTILEVERS SHALL BE CONSTRUCTED OF STEEL AND BE A VERTICAL SINGLE POST MONOTUBE STYLE IN ACCORDANCE WITH CDOT STANDARDS. THE SIGN CANTILEVERS SHALL BE CONSTRUCTED IN 2 PIECES; THE SPLICE SHALL BE LOCATED AT THE END OF THE HORIZONTAL MEMBER, ADJACENT TO THE RAISED PART OF THE STRUCTURE. SEE CHAPTER 1 FOR PAINT COLOR.

**BUTTERFLY SIGNS**

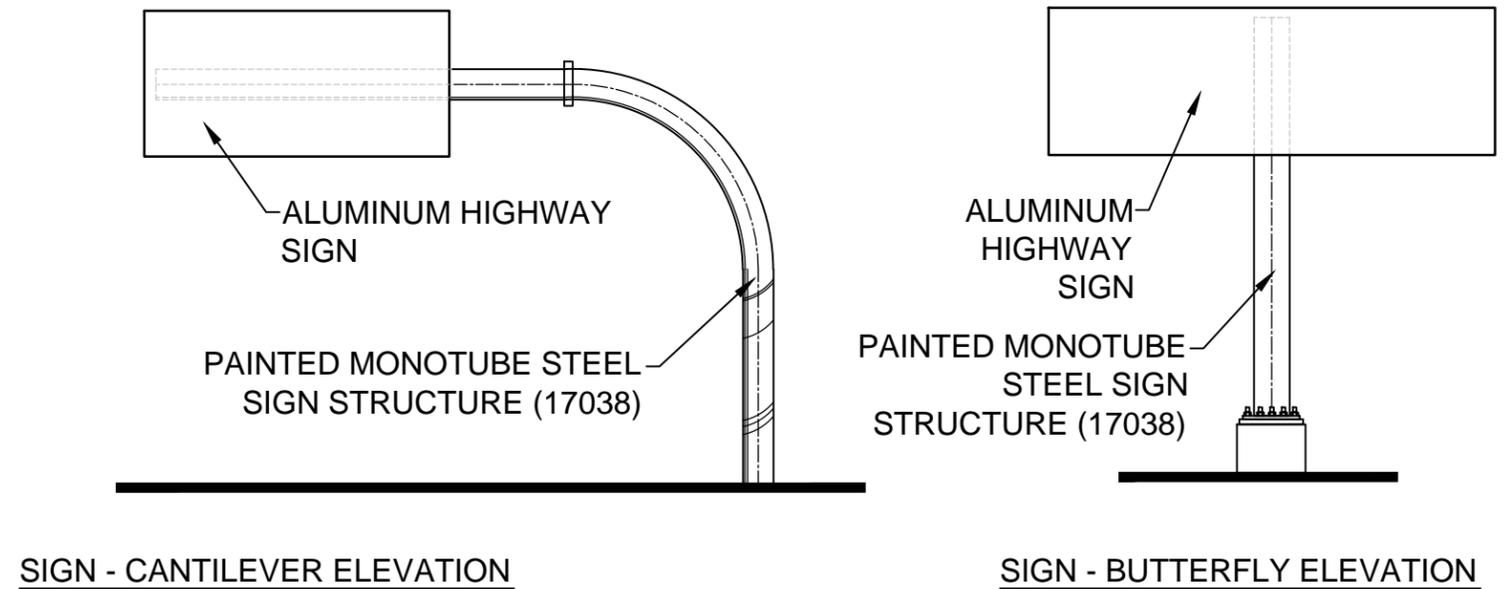
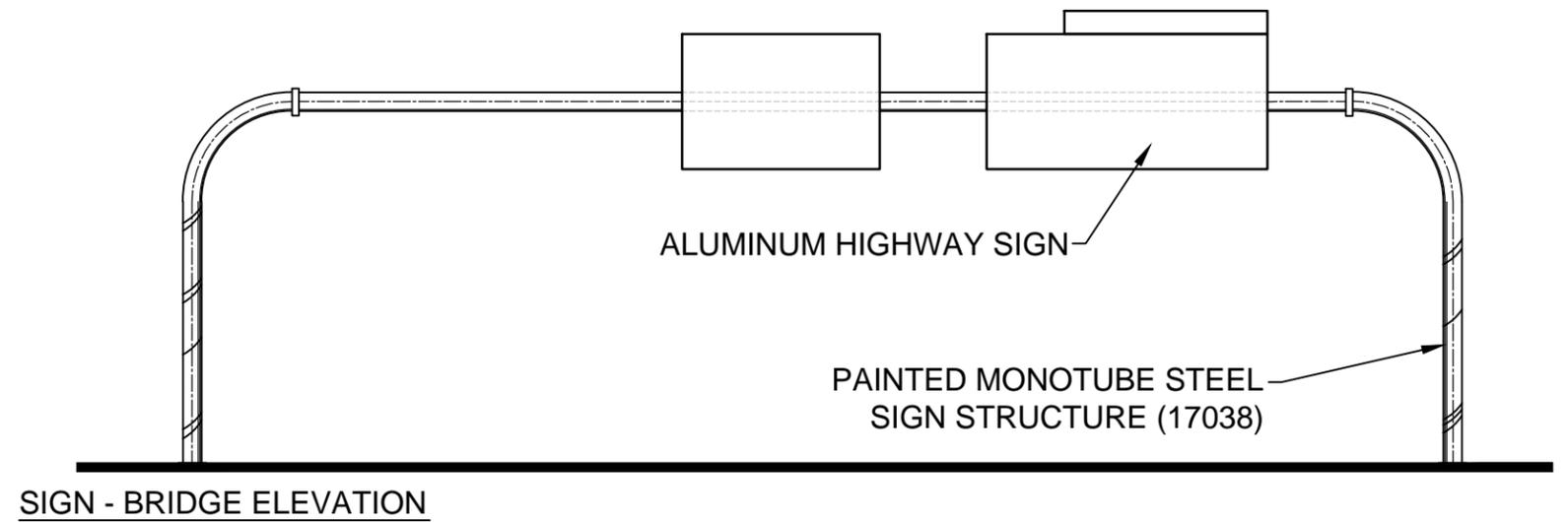
BUTTERFLY SIGNS SHALL BE CONSTRUCTED OF STEEL USING STANDARD PIPE AT THE HORIZONTAL MEMBERS AND EXTRA STRONG PIPE AT THE VERTICAL MEMBER. THE SPLICE SHALL BE LOCATED NEAR THE END OF THE VERTICAL MEMBER. SEE CHAPTER 1 FOR PAINT COLOR.

**GROUND SIGNS AND THEIR SUPPORTS**

GROUND SIGNS SHALL BE CONSTRUCTED OF ALUMINUM IN ACCORDANCE WITH CDOT STANDARDS. THE SUPPORTS SHALL BE CONSTRUCTED OF STEEL IN ACCORDANCE WITH CDOT STANDARDS. THE SIGN SUPPORTS SHALL BE PAINTED IN ACCORDANCE WITH CHAPTER 1.

SIGN STRUCTURES, INCLUDING ALL STRUCTURAL ELEMENTS, SHALL BE PAINTED IN ACCORDANCE WITH CHAPTER 1. THE PAINT SHALL BE DURABLE AND SUITABLE FOR APPLICATION OF THE MATERIAL ON WHICH THEY ARE APPLIED. ALL PAINT ON SIGN STRUCTURES SHALL BE NON-REFLECTIVE.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS



**RIGHT OF WAY FENCING**

THE I-25 RIGHT OF WAY THROUGHOUT THIS PROJECT SHALL BE FENCED FROM THE ADJACENT PROPERTIES. FENCING SHALL OCCUR TWELVE (12') FEET BEYOND THE TOE OF SLOPE OR AT ROW LINE. DO NOT INSTALL FENCING IN THE FLOOD PLAIN OR ON RAILROAD RIGHT OF WAY.

REMOVE ALL EXISTING CDOT ROW FENCING. PROVIDE CDOT STANDARD 6' HIGH GALVANIZED CHAIN LINK PER CDOT STANDARD PLANS, M-607-2 WITH TOP AND BOTTOM TENSION WIRE AND TWISTED CHAIN LINK ENDS TOP AND BOTTOM. PROVIDE RIGHT OF WAY FENCING ON BOTH SIDES OF THE HIGHWAY.

**OTHER FENCING**

ANY OTHER REMOVED FENCING WILL BE REPLACED WITH NEW FENCING OR LIKE SIZE, STYLE AND QUALITY.

**OVER RAILROAD TRACKS**



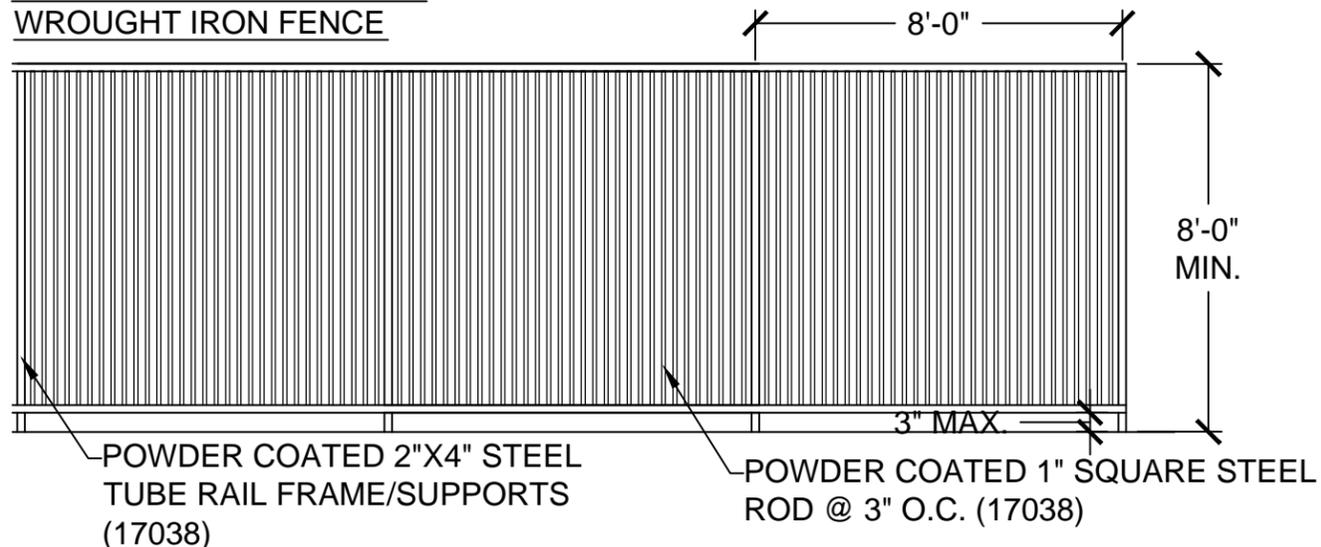
FENCING OVER RAILROAD TRACKS SHALL HAVE AN MIN. 8' WROUGHT IRON PEDESTRIAN RAIL AND VINYL COATED CHAIN LINK FENCING PER RAILROAD GUIDELINES. WROUGHT IRON SHALL EXTEND A MINIMUM OF 10' ABOVE THE ROADWAY SURFACE. THE CHAIN LINK SHALL BE MOUNTED DIRECTLY TO AND ON THE ROADWAY SIDE OF THE THE WROUGHT IRON PEDESTRIAN RAIL. FENCE ACROSS THE TRACKS AND A MINIMUM OF 25' PAST THE OUTSIDE TRACK CENTERLINE SHALL BE ON TOP OF A CDOT STANDARD GALVANIZED TYPE 10M BRIDGE RAIL. IN ADDITION THERE SHALL BE AN 8' WROUGHT IRON PICKET FENCE ON THE OUTSIDE OF THE CHAIN LINK FENCE TO HIDE THE FENCE. THE WROUGHT IRON FENCE AND CHAIN LINK FENCE WILL EXTEND FROM FAUX COLUMN TO FAUX COLUMN ABOVE THE RAILROAD ONLY. FOR ELEVATION OF FENCING ON BRIDGE RAIL SEE DETAIL ON PAGE 3.2.

**FENCING ON RETAINING WALLS**

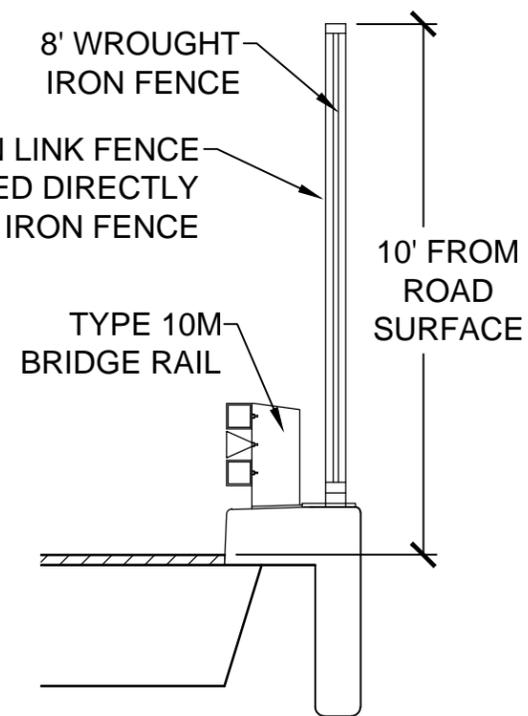
RETAINING WALLS THROUGHOUT THIS PROJECT SHALL HAVE CDOT STANDARD 42" HIGH GALVANIZED CHAIN LINK FENCE VINYL COATED BLACK WITH TOP AND BOTTOM TENSION WIRE AND TWISTED CHAIN LINK ENDS TOP AND BOTTOM INSTALLED AT THE TOP OF WALL AND BEHIND THE RETAINING WALL CAP.



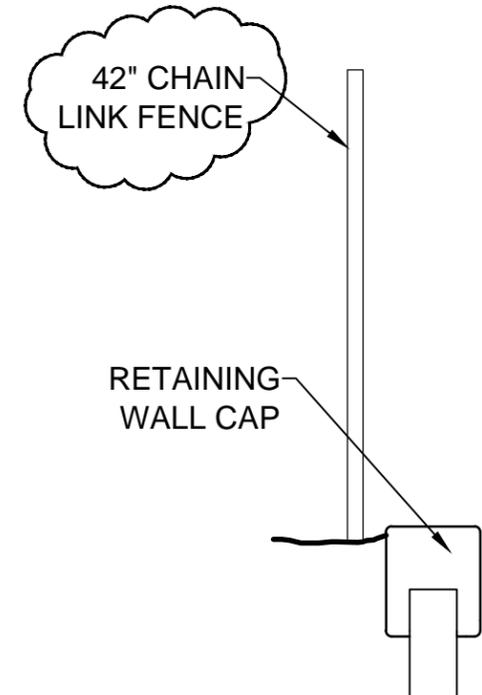
**FENCING OVER RAILROAD WROUGHT IRON FENCE**



**FENCING OVER RAILROAD**



**FENCING ON RETAINING WALLS**



LETTERING

ALL LETTERING USED ON BRIDGE STRUCTURES SHALL BE A MINIMUM OF 1" THICK AND 24" TALL. LETTERING SHALL BE SPACED FROM THE BRIDGE FACE A MINIMUM OF 1/2 INCH.

ALL LETTERING USED ON BRIDGE STRUCTURES SHALL BE A BOOK ANTIQUA FONT.

24" MIN. RUNYON FIELD

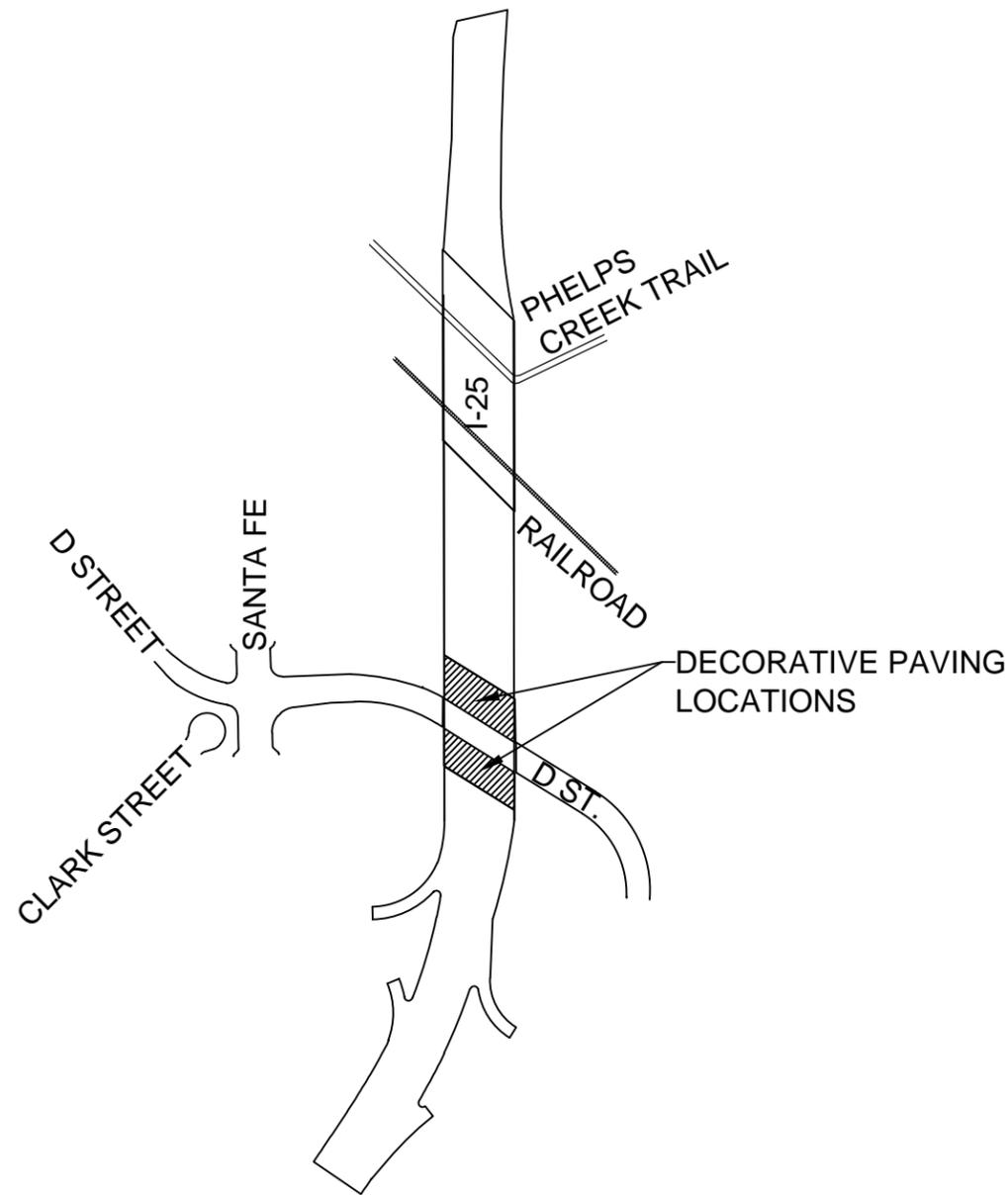
LETTERING SHALL BE CONSTRUCTED OF METAL. ALL LETTERING SHALL BE THE SAME STYLE AND MANUFACTURE THROUGHOUT THE PROJECT. LETTERING SHALL BE GALVANIZED THEN POWDER COATED A BLACK, SEMI-GLOSS FINISH. THE PAINT SHALL BE DURABLE AND SUITABLE FOR APPLICATION ON METAL.

LETTERING SHALL BE ATTACHED TO THE BRIDGE STRUCTURE, CENTERED OVER THE MEDIAN (CENTERLINE) OF D-STREET. LETTERING SHALL ONLY BE PLACED ON THE WEST SIDE (FACING SANTA FE) OF THE BRIDGE.

ALL LETTERING SIZE AND TEXT TYPE IS SUBJECT TO APPROVAL.

# FENCING AND LETTERING



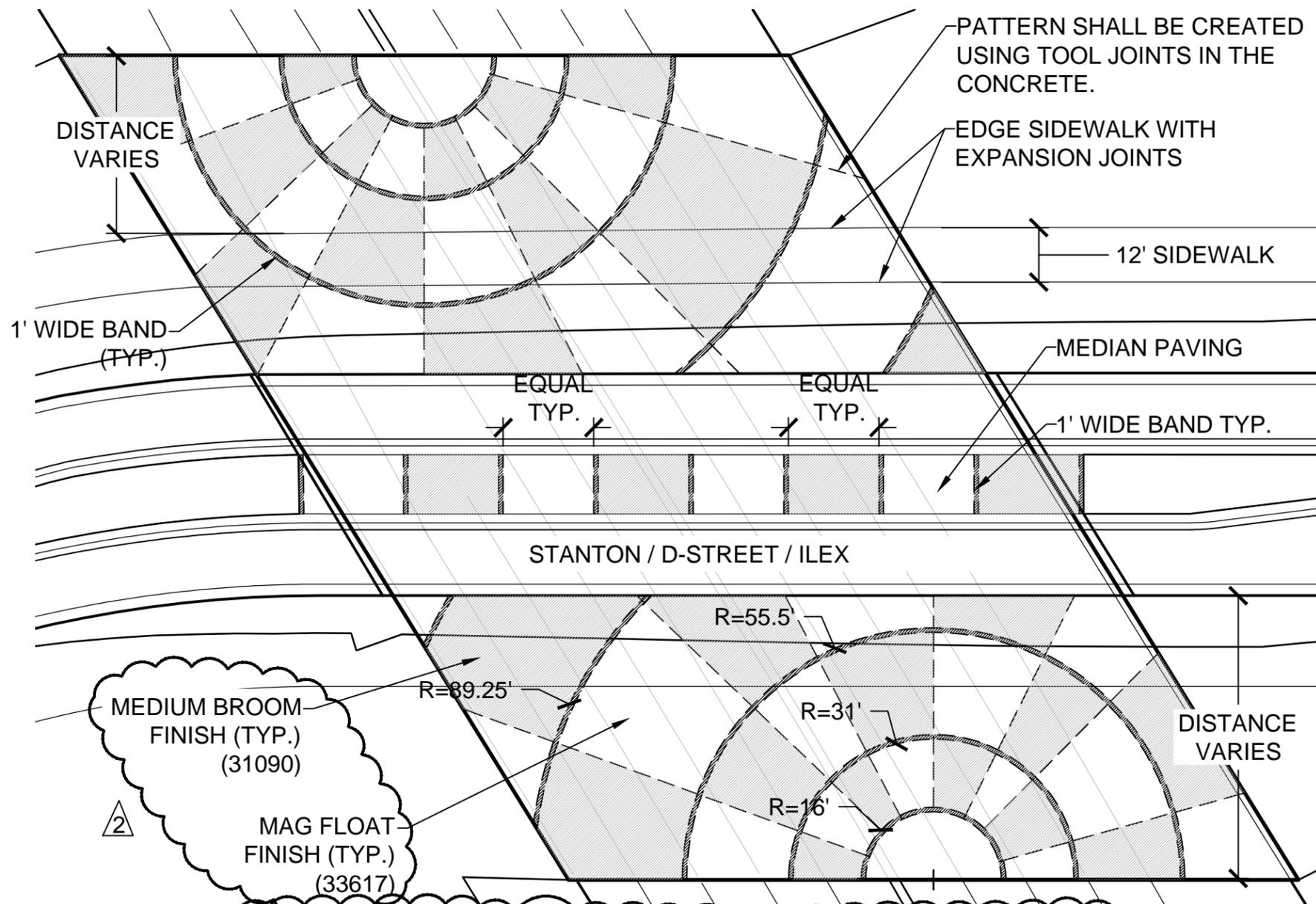


**DECORATIVE CONCRETE PAVING**

ALL AREAS UNDER BRIDGE STRUCTURE SHALL BE PAVED. NO EXPOSED SOIL UNDER BRIDGE WILL BE ACCEPTED. DECORATIVE PAVING SHALL EXIST BETWEEN THE BACK OF CURB AND ABUTMENT WALL. PAVING LIMITS SHALL BE IN LINE WITH THE LIMITS OF THE BRIDGE DECK.

DECORATIVE CONCRETE APRON IN MEDIAN SHALL BE STAINED TO MATCH DECORATIVE PAVING ADJACENT TO ABUTMENT WALLS (30279).

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS



MEDIUM BROOM FINISH (TYP.) (31090)  
 MAG FLOAT FINISH (TYP.) (33617)

EXPANSION JOINTS SHALL BE FILLED WITH CAULK. COLOR SHALL MATCH CONCRETE STAIN COLOR. TOOL CAULK JOINT TO A DEPTH OF 1/4" MAX. DECORATIVE CONCRETE PAVING SHALL HAVE A MAXIMUM 2% SLOPE FROM THE ABUTMENT WALL TO THE BACK OF CURB. ADDITIONAL JOINTS SHALL BE ACCEPTED BUT AESTHETIC INTENT MUST BE MAINTAINED.

THE MINIMUM DISTANCE BETWEEN THE BACK OF CURB OR BACK OF SIDE WALK SHALL BE 16 FEET. THE MOST INTERIOR RING SHALL START AT THE ABUTMENT WALL REGARDLESS OF DISTANCE TO BACK OF WALK OR BACK OF CURB. RING RADIUS MAY BE ADJUSTED TO FIT SCALE OF SPACE. RING RADIUS TO BE APPROVED BY CDOT.

GENERAL DESCRIPTION

# DECORATIVE CONCRETE PAVING



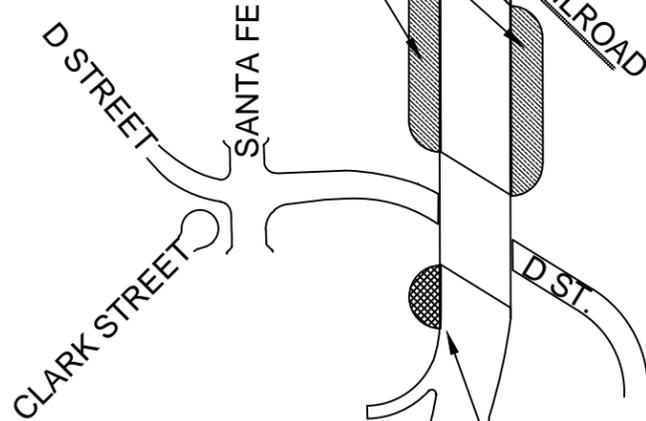
**DECORATIVE ROCK PAVING**

ALL SLOPE AREAS AS INDICATED SHALL BE PAVED WITH DECORATIVE ROCK. NO EXPOSED SOIL WILL BE ACCEPTED. DECORATIVE ROCK PAVING SHALL EXTEND FROM APPROXIMATELY FROM THE INTERSTATE THE LIMIT OF THE DESIGNED RADIUS OR TOE OF SLOPE, WHICH EVER IS GREATER.

DECORATIVE ROCK PAVING SHALL ONLY OCCUR ON SLOPES THAT ARE NOT IRRIGATED.

DECORATIVE ROCK PAVING LOCATIONS ONE BRIDGE OPTION: NORTHWEST QUADRANT OF RAILROAD BRIDGE

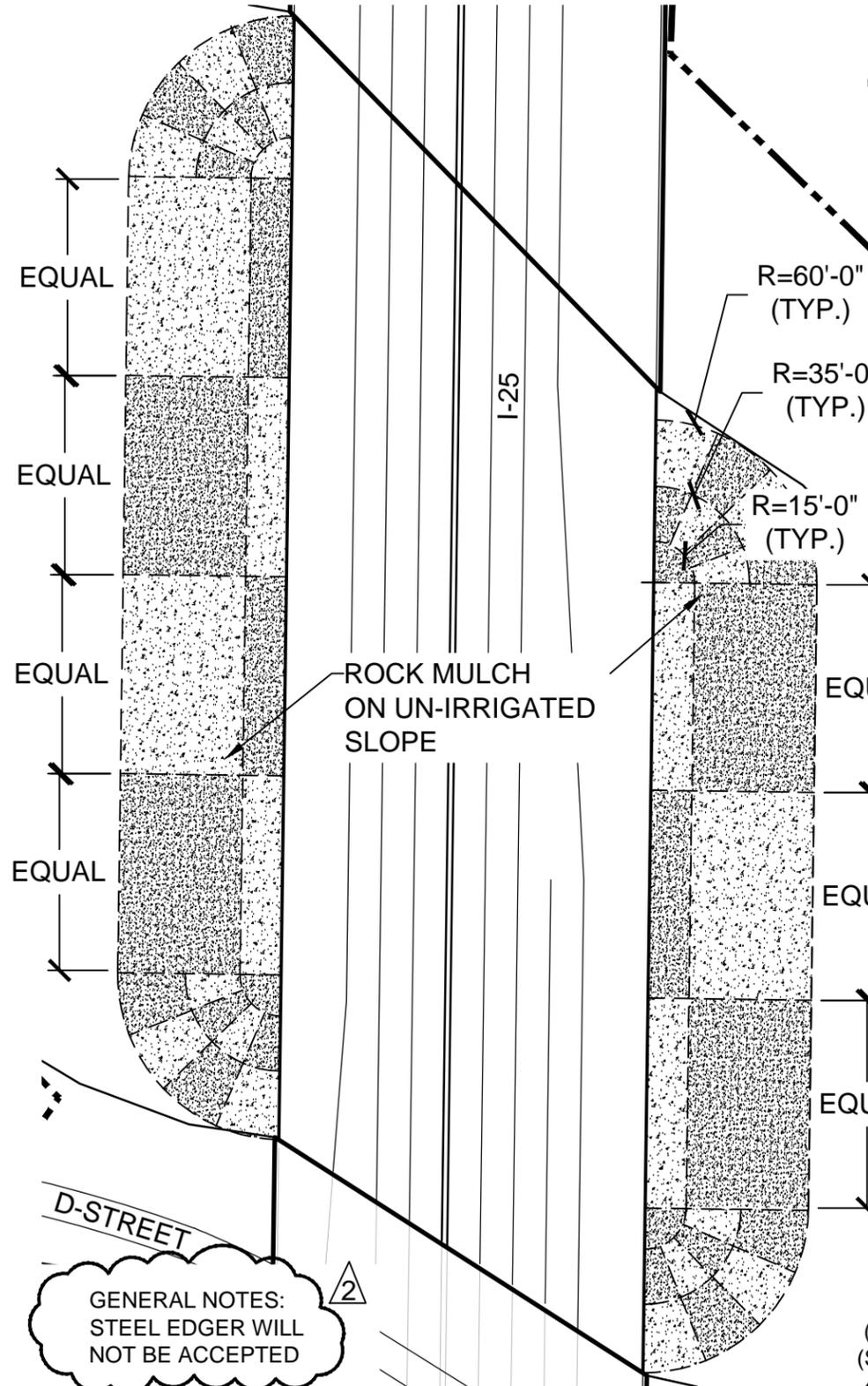
DECORATIVE ROCK PAVING LOCATIONS TWO BRIDGE OPTION



DECORATIVE ROCK PAVING LOCATIONS ONE BRIDGE OPTION: SOUTHWEST QUADRANT OF D-STREET BRIDGE

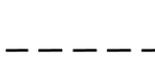


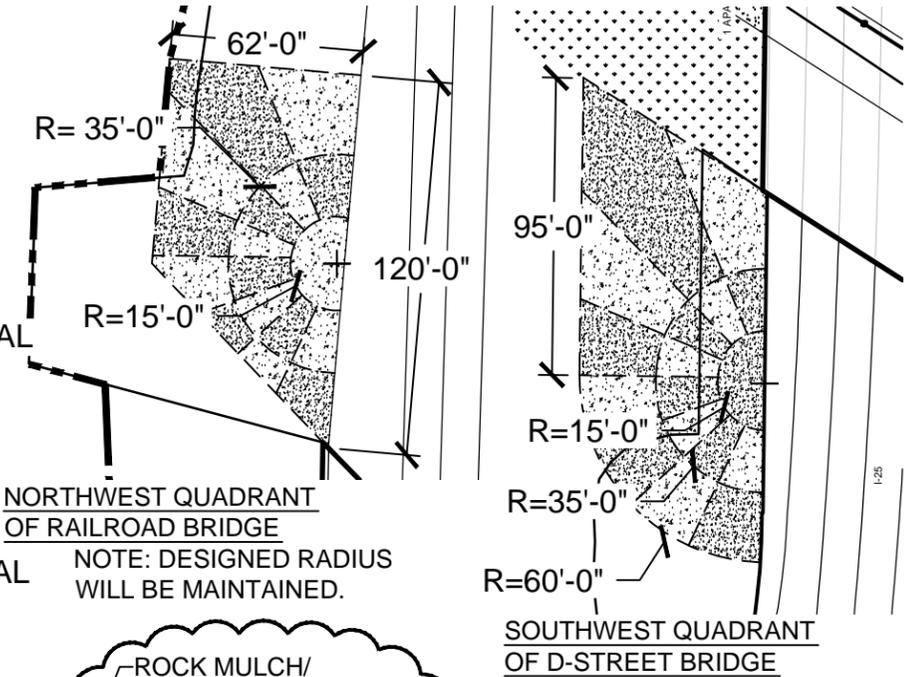
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS



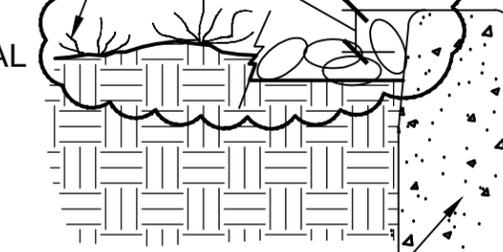
TWO BRIDGE OPTION

**LEGEND:**

-  ROCK MULCH - 1 1/2" ORANGE AND RED HUED ROCK
-  ROCK MULCH - 1 1/2" GRAY HUED NATURAL GRANITE
-  ROCK MULCH - 1/2" TO 3/4" ORANGE/TAN ROCK
-  PLANTING AREAS ONLY  
PEA GRAVEL WILL NOT BE ACCEPTED
-  LANDSCAPE CONCRETE CURB (EDGING)



ROCK MULCH/  
NATIVE SEED AREA  
1" MIN.



LANDSCAPE CONCRETE CURB (EDGING) 6" CDOT CURB TYPE 2 (SECTION B). LANDSCAPE CURB WILL HAVE NO COLOR.

LANDSCAPE CONCRETE CURB  
N.T.S.



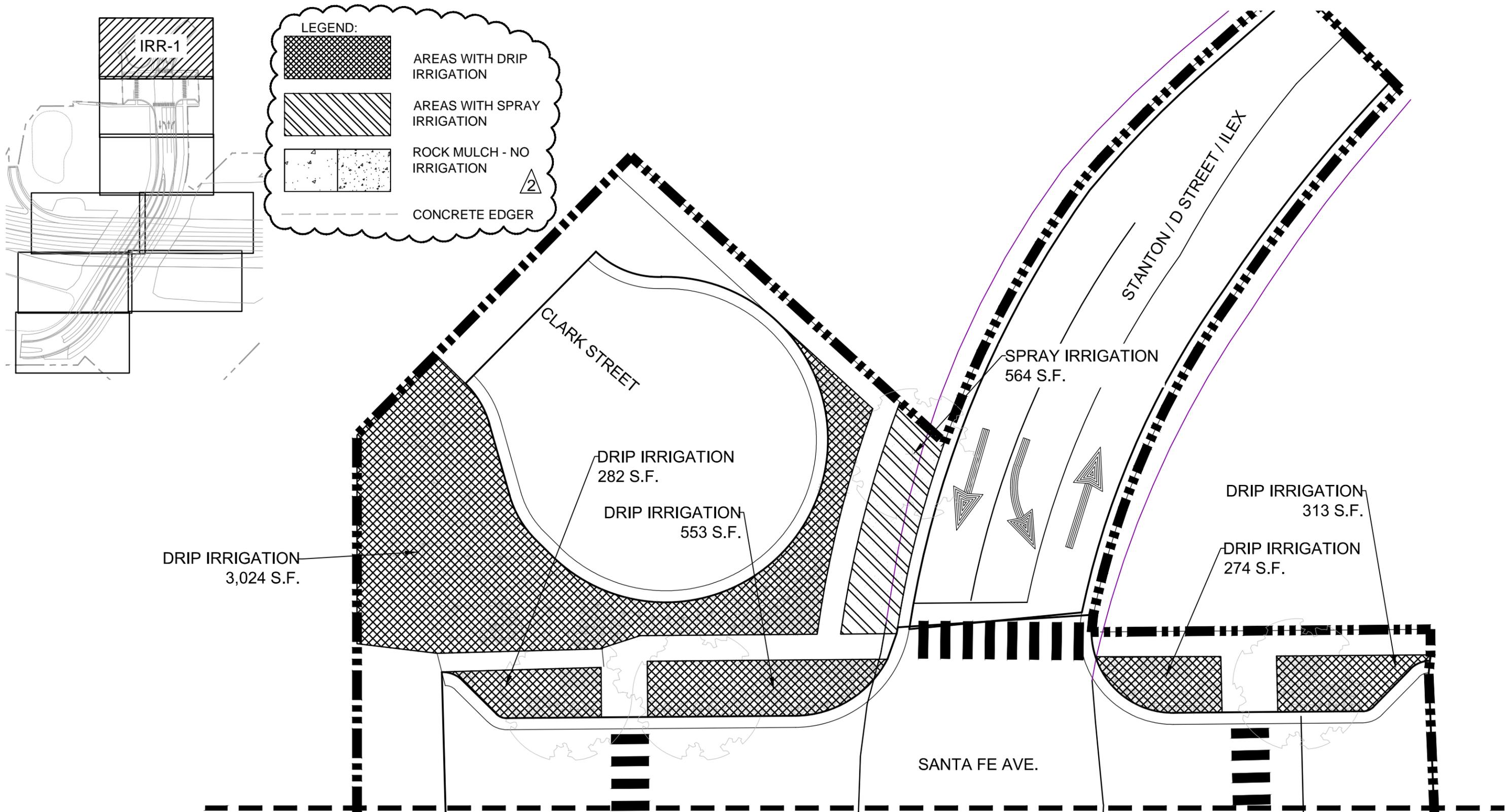
WEED FABRIC  
4" MIN. DEPTH OF ROCK MULCH

FINISHED GRADE FOR MULCH BED BELOW TOP OF CURB

GENERAL DESCRIPTION

# DECORATIVE ROCK PAVING

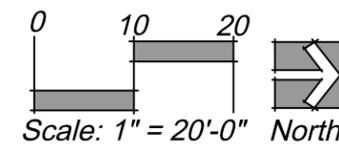




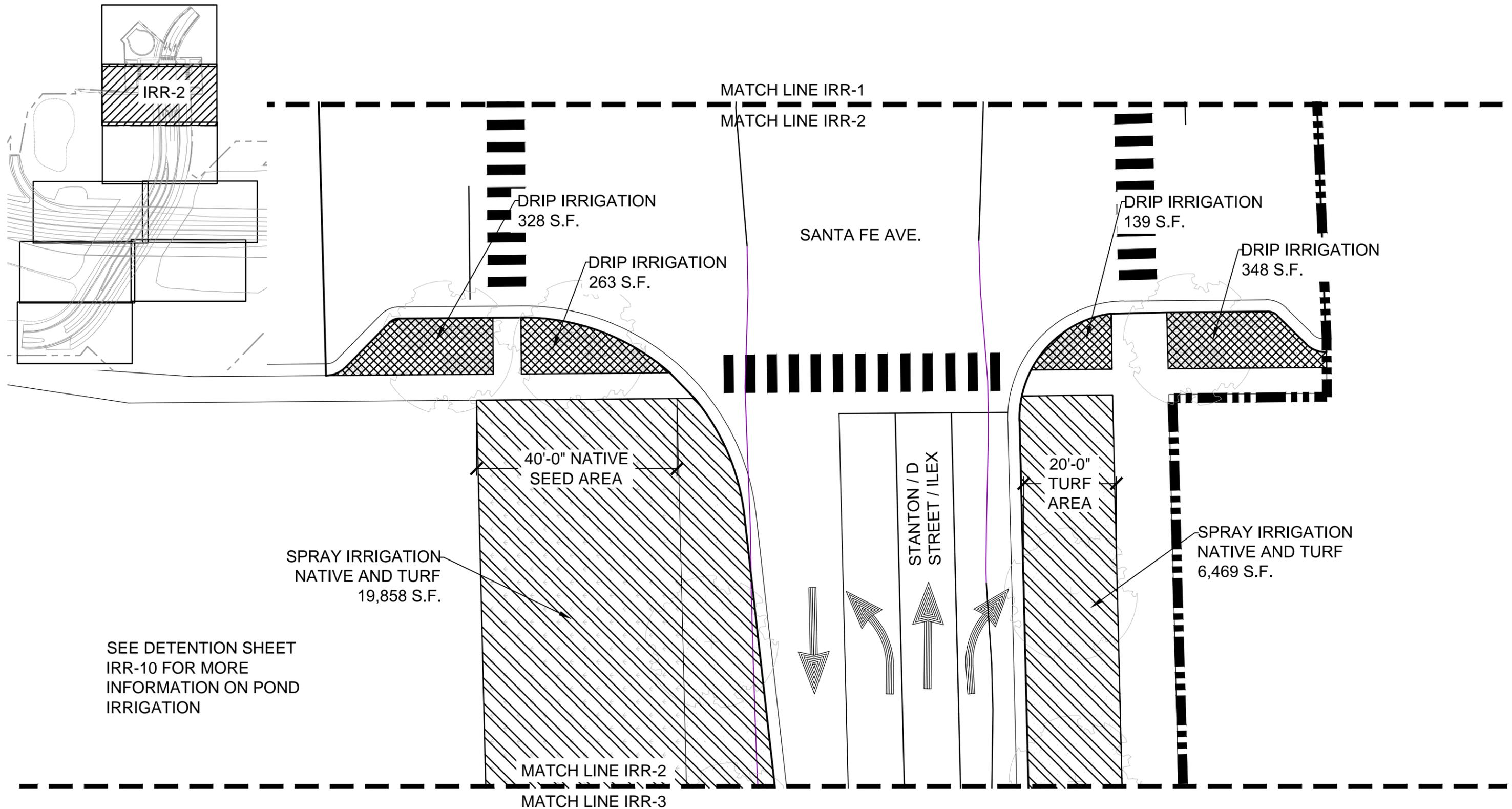
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

IRRIGATION PLAN

# IRRIGATION - IRR-1



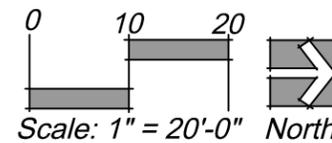
9.0



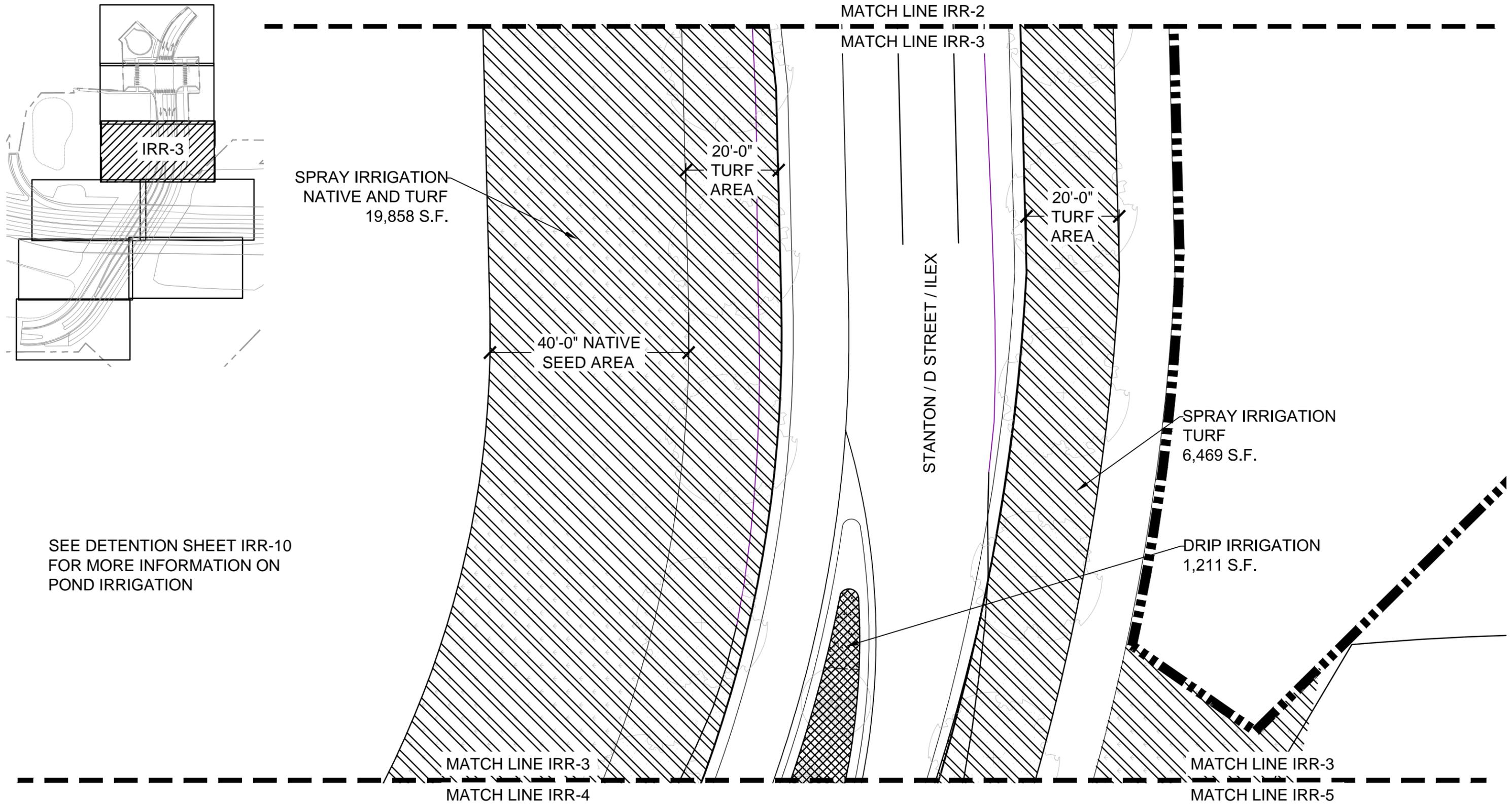
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

IRRIGATION PLAN

# IRRIGATION - IRR-2



9.1

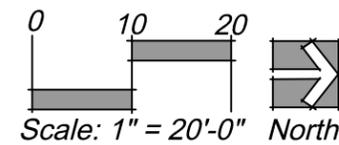


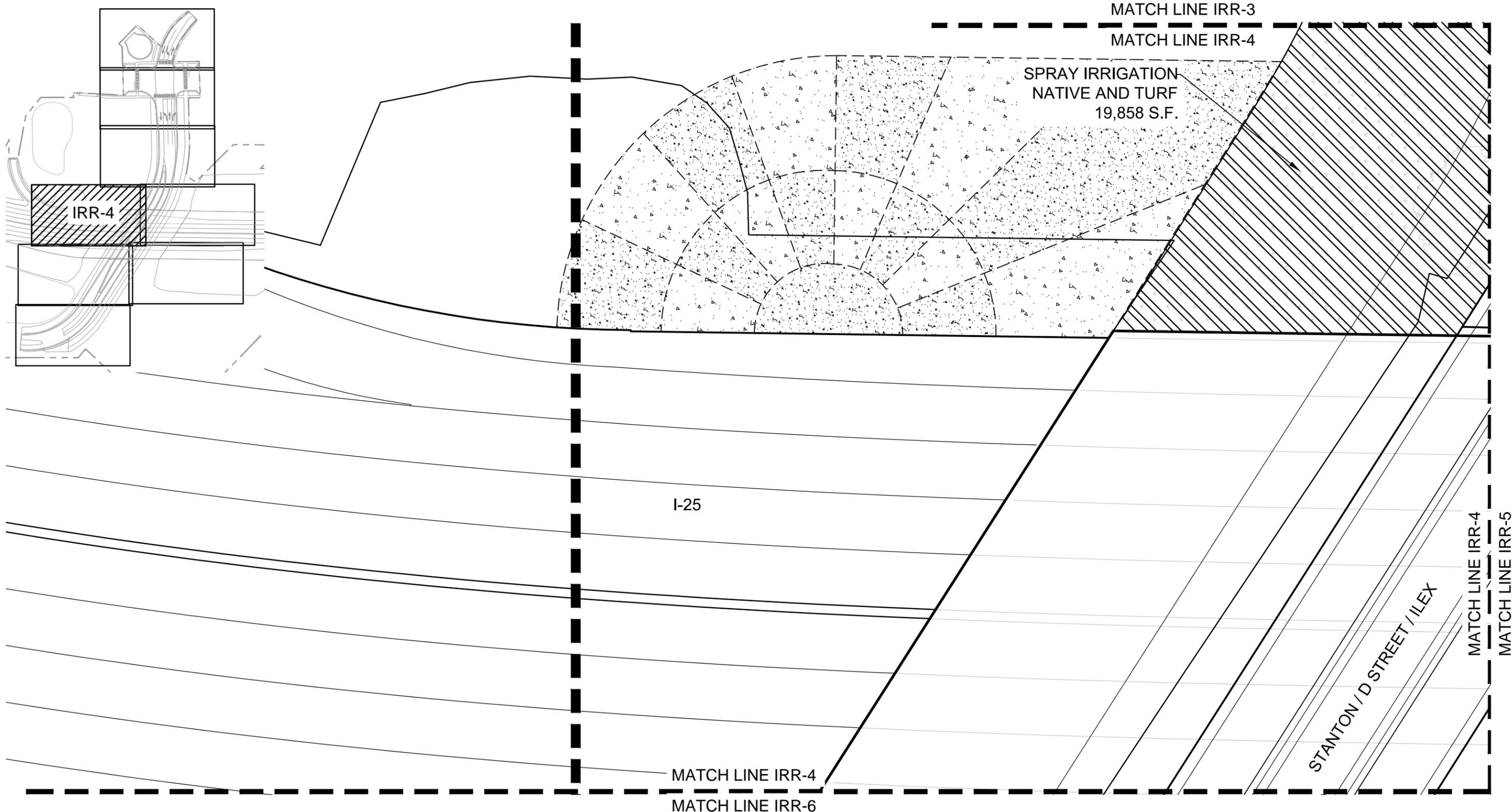
SEE DETENTION SHEET IRR-10  
FOR MORE INFORMATION ON  
POND IRRIGATION

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

IRRIGATION PLAN

# IRRIGATION - IRR-3

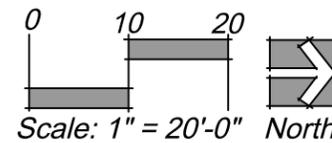


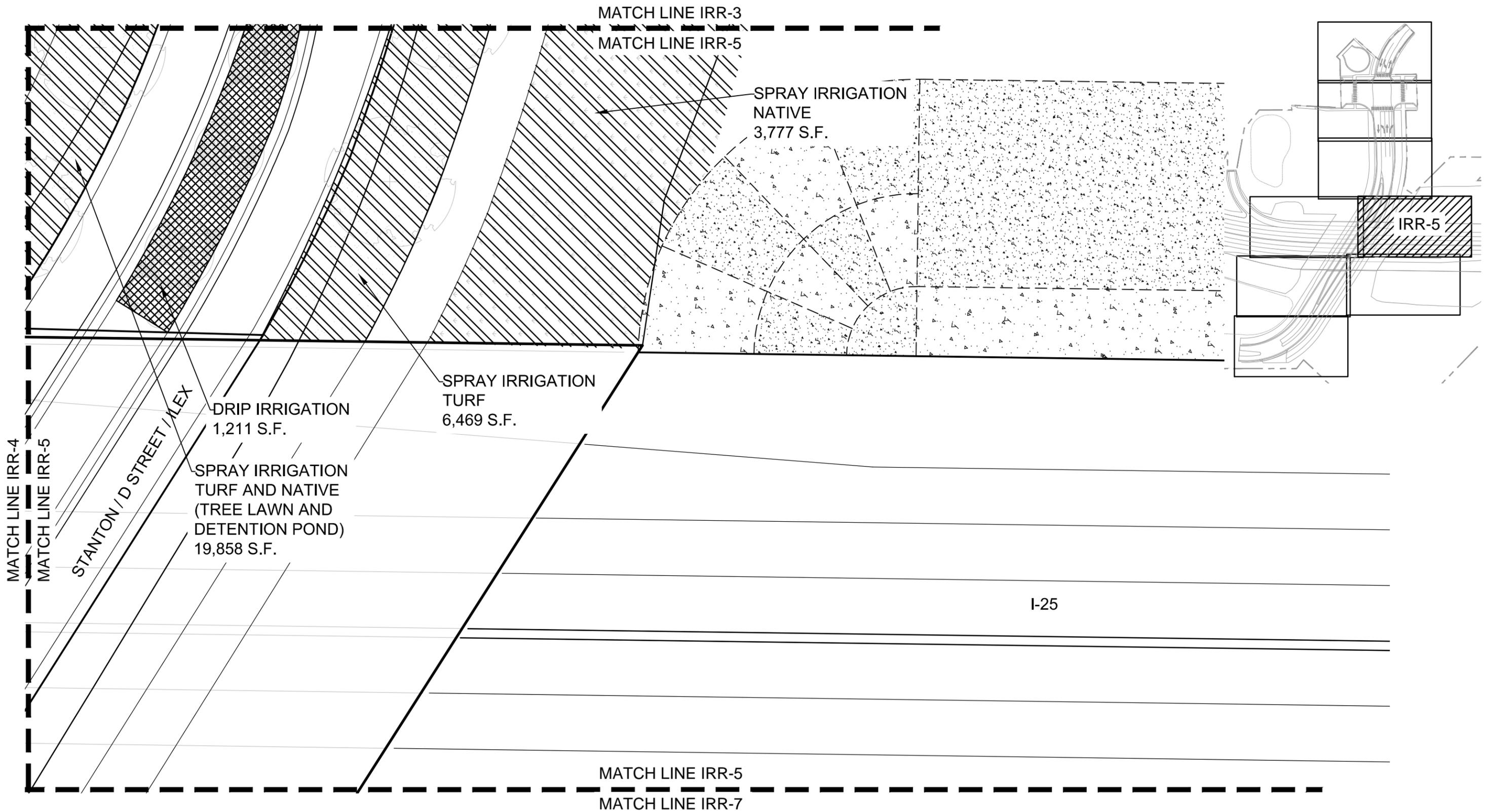


I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

IRRIGATION PLAN

# IRRIGATION - IRR-4

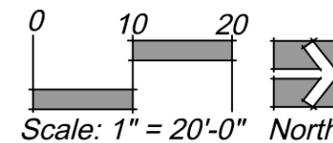


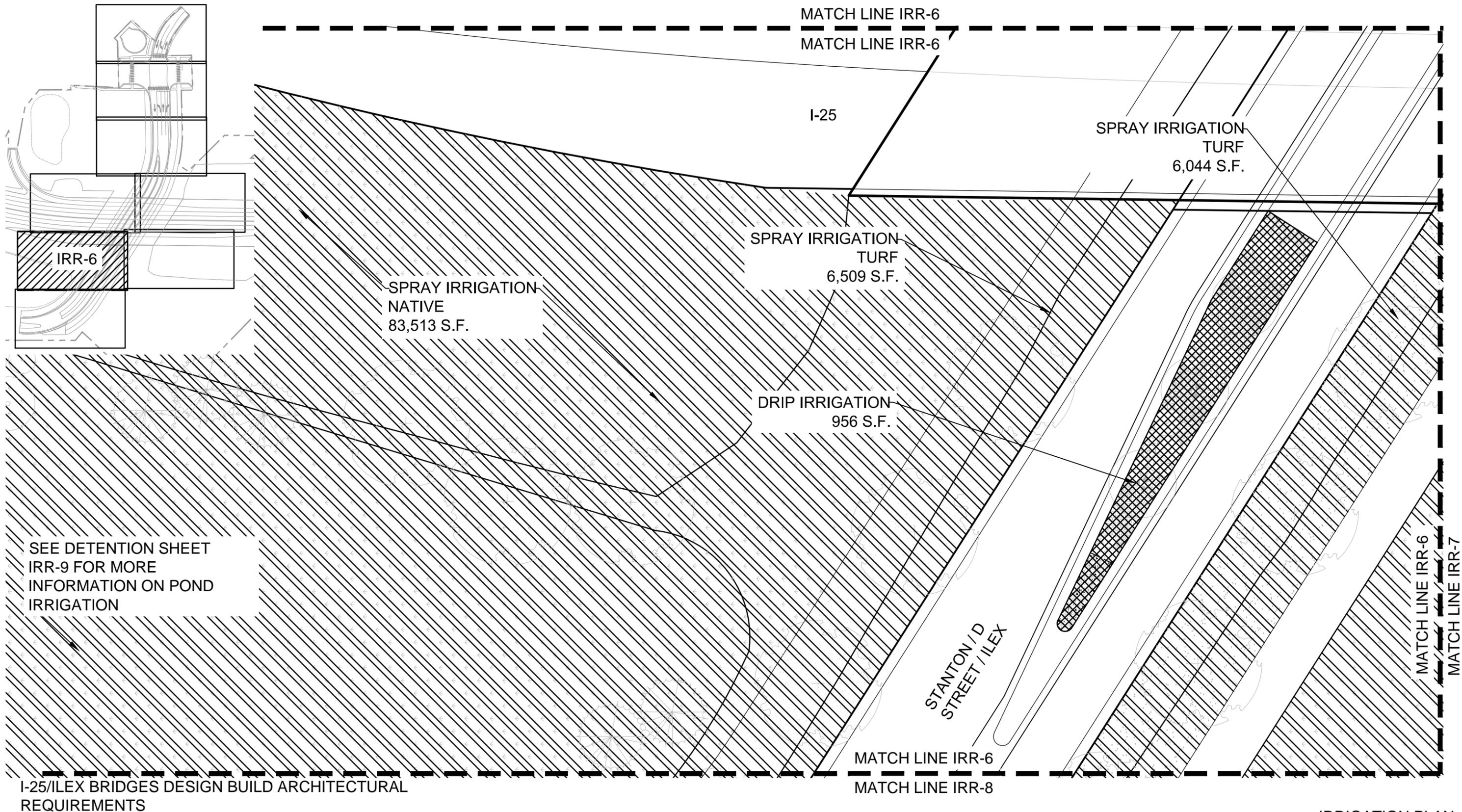


I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

IRRIGATION PLAN

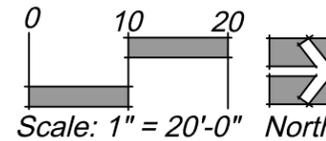
# IRRIGATION - IRR-5

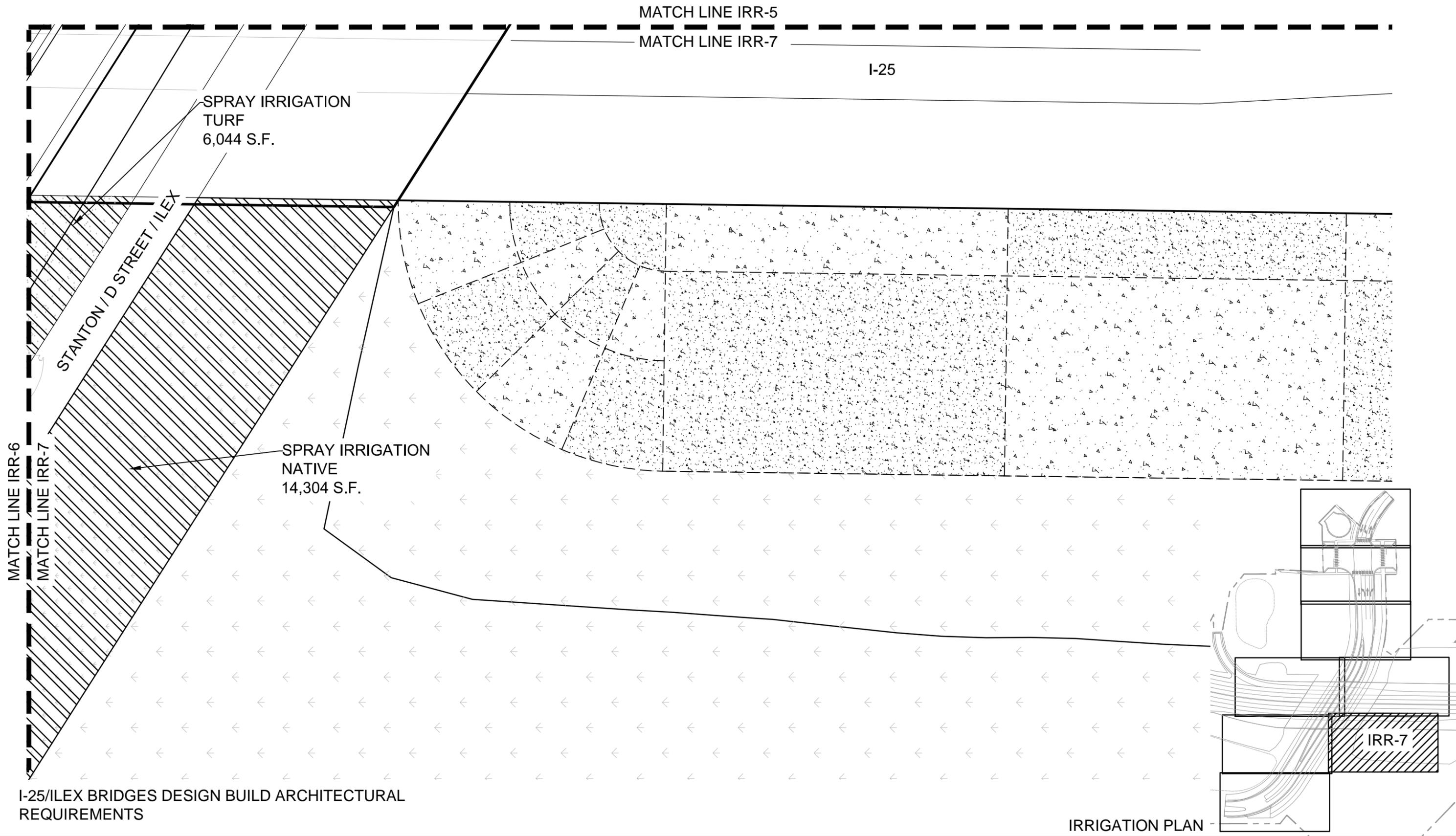




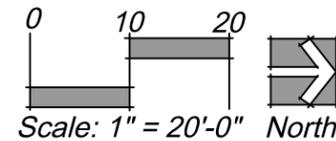
IRRIGATION PLAN

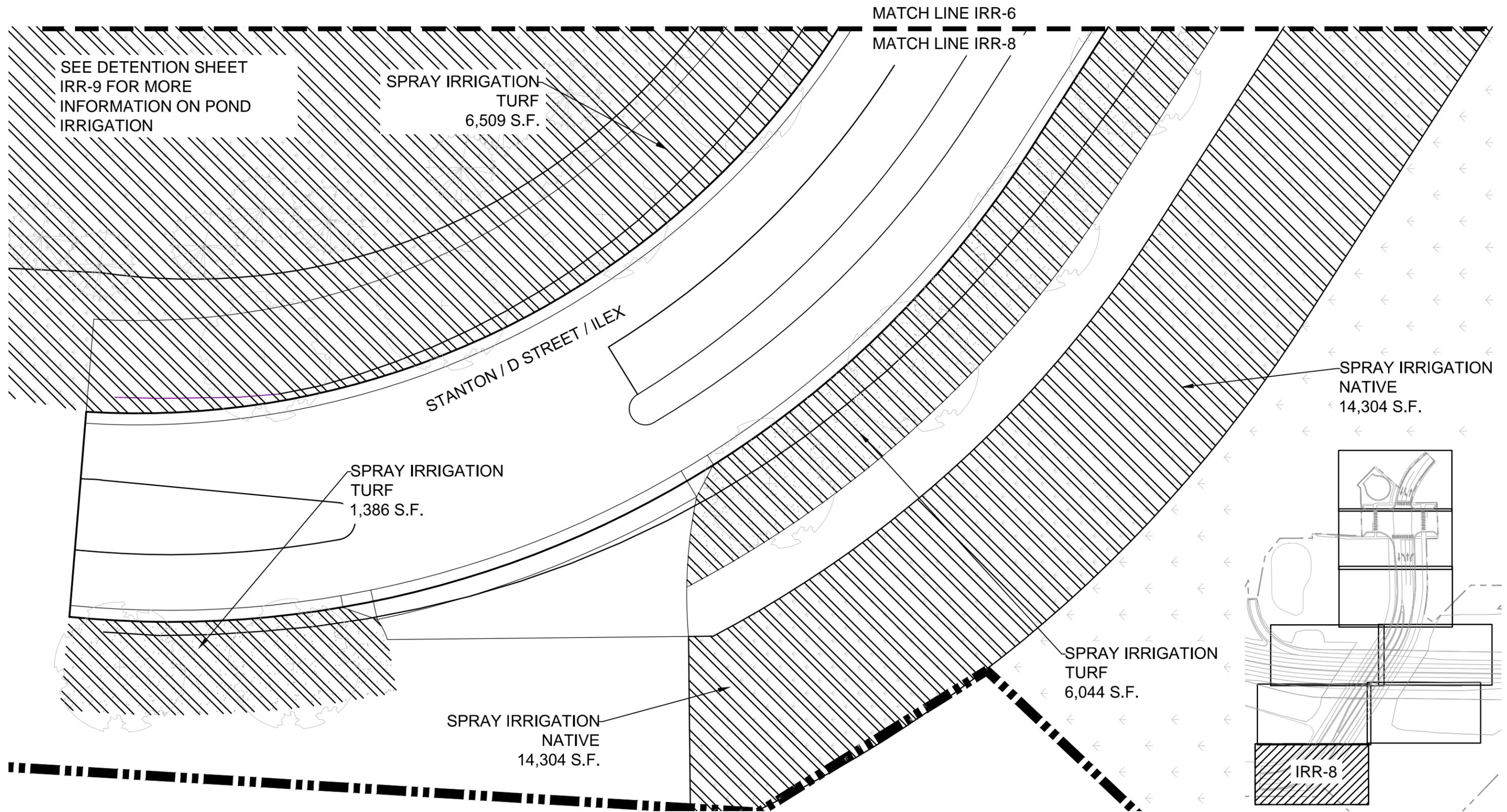
# IRRIGATION - IRR-6





# IRRIGATION - IRR-7

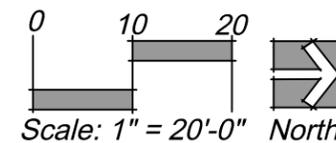


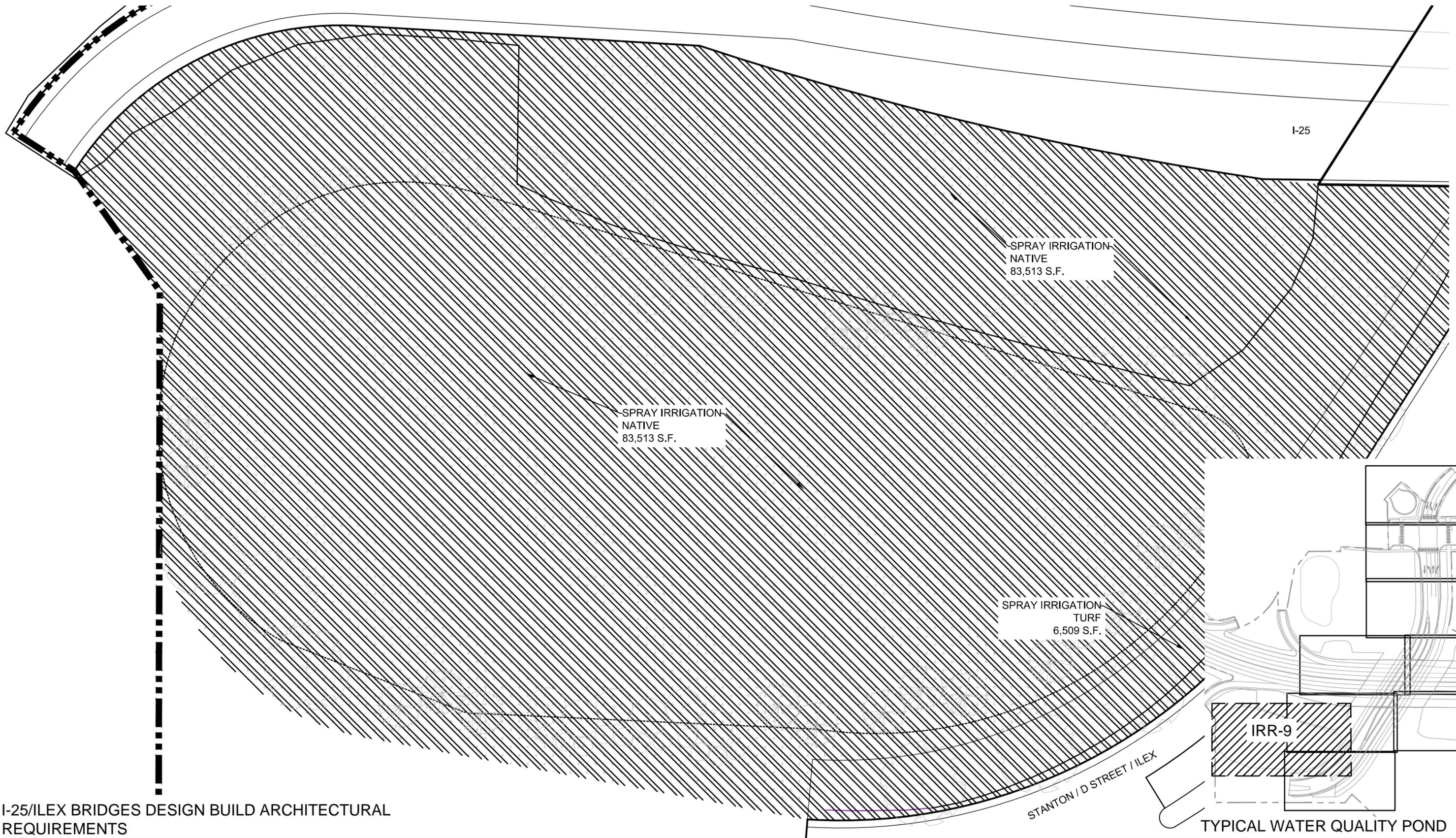


I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

IRRIGATION PLAN

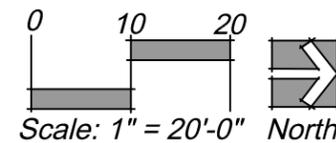
# IRRIGATION - IRR-8

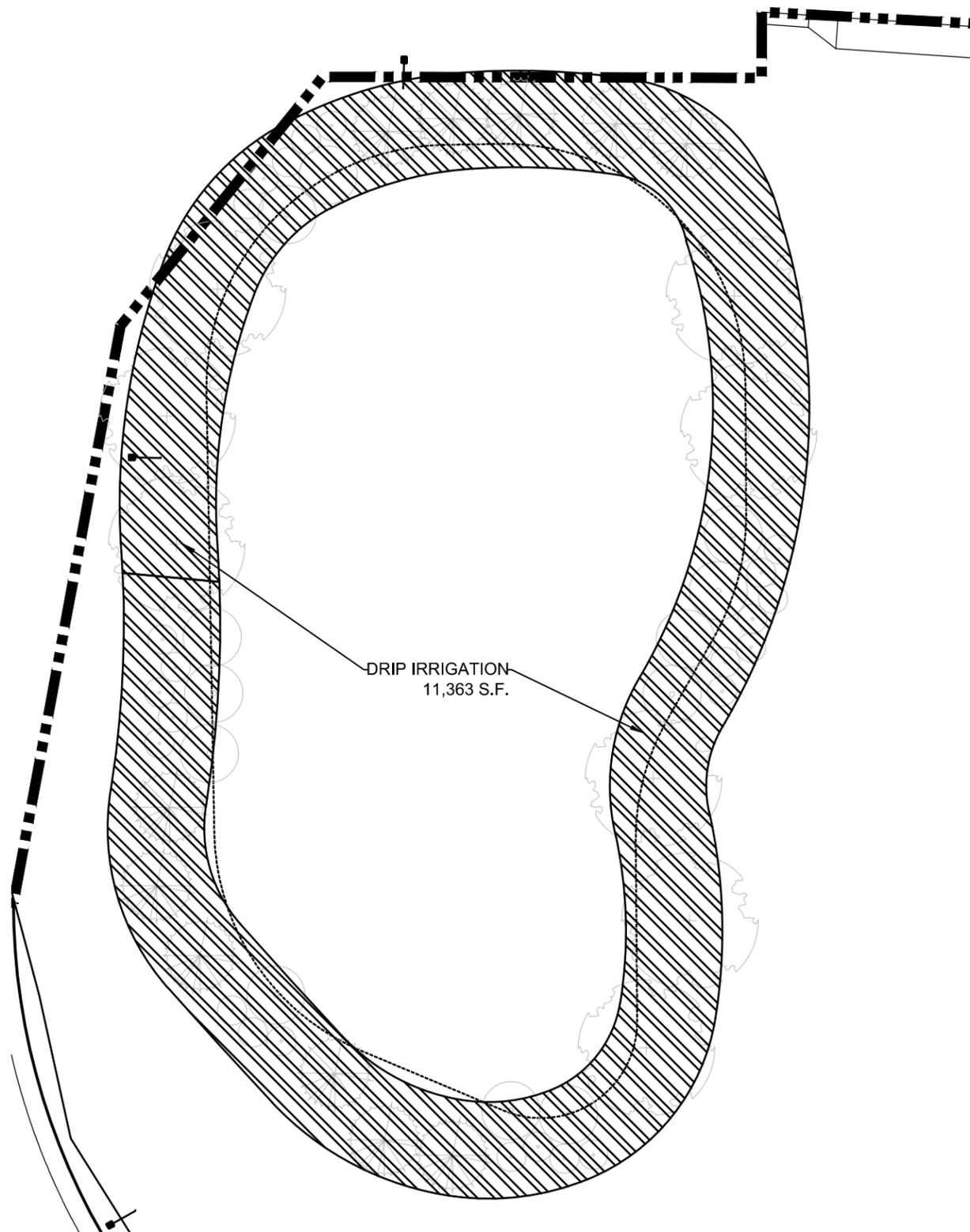




I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

# IRRIGATION - IRR-9

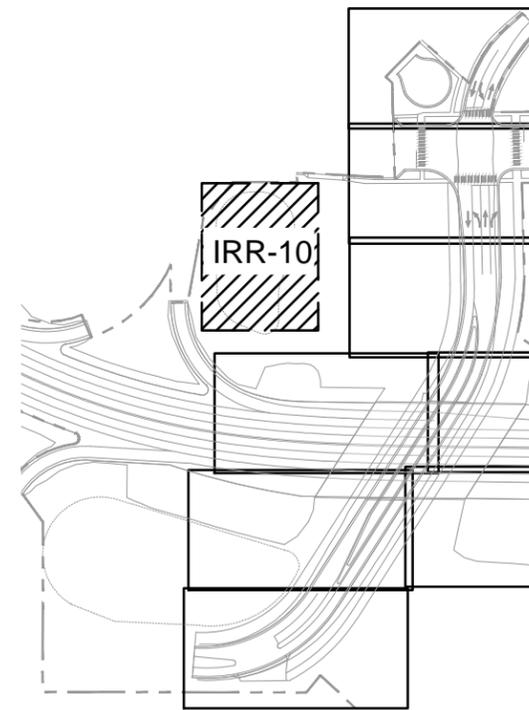




**NOTES:**

1. CONTRACTOR SHALL COORDINATE THE SPECIFIC LOCATION OF THE IRRIGATION TAP WITH THE CITY OF PUEBLO.
2. CONTRACTOR SHALL COORDINATE THE WORK FOR THE IRRIGATION TAP WITH THE PUEBLO BOARD OF WATER WORKS (BOWW). CONTRACTOR IS RESPONSIBLE FOR THE SAW CUT AND REMOVAL AND REPLACEMENT OF THE ASPHALT IN ROADWAY. CONTRACTOR SHALL EXCAVATE TO EXPOSE THE EXISTING BOWW WATER LINE. BOWW WILL TAP THE EXISTING WATER MAIN IN ROADWAY FOR THE NEW COPPER SERVICE LINE AND WILL INSTALL THE NEW METER LOCATED AS PER THE CITY OF PUEBLO. THE CONTRACTOR SHALL INSTALL THE NEW SERVICE LINE FROM THE WATER MAIN TO THE METER CAN.
3. COSTS FOR THE INSTALLATION OF THE WATER SERVICE AND METER SHALL BE INCLUDED IN THE COST OF WORK. THE COPPER SERVICE LINE TO THE BACKFLOW PREVENTER ASSEMBLY SHALL BE INCLUDED IN THE COST OF WORK.
4. TAP FEES, IF ANY, SHALL BE PAID FOR BY THE CONTRACTOR.
5. WATER METER SHALL BE PURCHASED AND INSTALLED BY THE CONTRACTOR IN THE CITY OF PUEBLO'S NAME.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED AS A RESULT OF COORDINATION WITH BOWW, IRRIGATION CONNECTION, REPAIRS TO EXISTING INFRASTRUCTURE (INCLUDING ROADS) AND IRRIGATION SYSTEM INSTALLATION.
7. IRRIGATION INFORMATION PRESENTED IN SHEETS 9.0-9.13 IS SPECIFIC TO THE ILEX/D-STREET/STANTON IMPROVEMENTS.

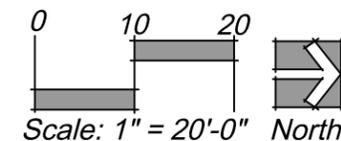
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I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

TYPICAL WATER QUALITY POND AND IRRIGATION NOTES

# IRRIGATION - IRR-10



SECTION 02815 - IRRIGATION

PART I - GENERAL

1.01 DESCRIPTION - WORK OF THIS SECTION GENERALLY INCLUDES PROVISIONS FOR THE INSTALLATION OF A COMPLETE UNDERGROUND IRRIGATION SYSTEM INCLUDING THE FOLLOWING:

- A. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, APPLIANCES AND MATERIALS AND PERFORM ALL OPERATIONS REQUIRED TO COMPLETE SPRINKLER SYSTEM INSTALLATION AND OTHER WORK AS SHOWN ON THE APPLICABLE DRAWINGS AND AS SPECIFIED HEREIN.
- B. THE IRRIGATION SYSTEM SHALL CONTAIN SEPARATE DRIP ZONES REQUIRED FOR TREES IN THE LAWN AREAS. SPRAY AND/OR ROTOR SPRINKLERS ARE REQUIRED FOR SOD OR LAWN AREA. LANDSCAPE DRIPLINE IN-LINE EMITTER SYSTEM SHALL BE USED FOR THE SHRUBS AND PERENNIAL GARDEN AREAS WHERE MOST EFFICIENT USE IS REQUIRED. DRIP IRRIGATION TO ALL TREES, SHRUBS AND PERENNIALS. CONTRACTOR SHALL VERIFY THE TAP, METER AND SERVICE LINE FOR EACH POINT OF CONNECTION.
- C. STATIC PRESSURE VERIFICATION AND COORDINATION OF IRRIGATION SYSTEM INSTALLATION WITH LANDSCAPE MATERIAL INSTALLATION.
- D. TRENCHING, STOCKPILING EXCAVATION MATERIALS, REFILLING AND COMPACTING TRENCHES.
- E. COMPLETE IRRIGATION SYSTEM INCLUDING BUT NOT LIMITED TO PIPING, BACKFLOW PREVENTER ASSEMBLIES, VALVES, FITTINGS, HEADS, CONTROLLERS AND WIRING, AND FINAL ADJUSTMENTS TO INSURE COMPLETE COVERAGE.
- F. WATER CONNECTIONS
- G. REPLACEMENT OF UNSATISFACTORY MATERIALS
- H. CLEAN-UP, INSPECTIONS, AND APPROVAL.
- I. TESTS.

1.02 RELATED SECTIONS

- A. EXAMINE ALL SECTIONS RELATED TO PROJECT WORK.

1.03 REFERENCES

- A. PERFORM WORK IN ACCORDANCE WITH REQUIREMENTS OF CONDITIONS OF THE CONTRACT, SPECIAL PROVISIONS, LANDSCAPE PROVISIONS AS WELL AS PROVISIONS OF ALL APPLICABLE LAWS, CODES, ORDINANCES, RULES, AND REGULATIONS.
- B. CONFORM TO REQUIREMENTS OF REFERENCE INFORMATION LISTED BELOW EXCEPT WHERE MORE STRINGENT REQUIREMENTS ARE SHOWN OR SPECIFIED IN CONTRACT DOCUMENTS.
  - 1. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) - SPECIFICATIONS AND TEST METHODS SPECIFICALLY REFERENCED IN THIS SECTION.
  - 2. UNDERWRITERS LABORATORIES (UL) - UL WIRES AND CABLES

1.04 QUALITY ASSURANCE

- A. INSTALLER QUALIFICATIONS - INSTALLER SHALL HAVE HAD CONSIDERABLE EXPERIENCE AND DEMONSTRATE ABILITY IN THE INSTALLATION OF IRRIGATION SYSTEM(S) OF SPECIFIC TYPE(S) IN A NEAT, ORDERLY AND RESPONSIBLE MANNER IN ACCORDANCE WITH RECOGNIZED STANDARDS OF WORKMANSHIP. TO DEMONSTRATE ABILITY AND EXPERIENCE NECESSARY FOR THIS PROJECT, AND FINANCIAL STABILITY, SUBMIT IF REQUESTED BY OWNER'S REPRESENTATIVE, PRIOR TO CONTRACT AWARD THE FOLLOWING:
  - 1. LIST OF 3 PROJECTS COMPLETED IN THE LAST 2 YEARS OF SIMILAR COMPLEXITY TO THIS PROJECT. DESCRIPTION OF PROJECTS SHALL INCLUDE:

- a. NAME OF PROJECT
- b. LOCATION
- c. OWNER
- d. BRIEF DESCRIPTION OF WORK AND PROJECT BUDGET

B. SPECIAL REQUIREMENTS:

- 1. ALL WORK INVOLVING PLUMBING FOR INSTALLATION OF COPPER PIPING, BACKFLOW PREVENTER(S), AND RELATED WORK SHALL BE EXECUTED BY LICENSED AND BONDED PLUMBER(S). SECURE A PERMIT AT LEAST 48 HOURS PRIOR TO START OF INSTALLATION.
- 2. TOLERANCES - SPECIFIED DEPTHS OF MAINS AND LATERALS AND SLOPE OF PIPES ARE MINIMUMS.
  - a. MAIN LINE - 30 INCHES BELOW FINISHED GRADE
  - b. SLEEVING - 30 INCHES BELOW FINISHED GRADE
  - c. LATERALS - 24 INCHES BELOW FINISHED GRADE
  - d. DRIP LINES - PER MANUFACTURER'S RECOMMENDATIONS
  - e. SLOPE OF PIPE- 2%
- 3. SETTLEMENT OF TRENCHES IS CAUSE FOR REMOVAL OF FINISH GRADE TREATMENT, REFILLING, COMPACTING, AND REPAIR OF FINISH GRADE TREATMENT.
- 4. COORDINATION WITH OTHER CONTRACTORS - PROTECT, MAINTAIN, AND COORDINATE WORK WITH WORK UNDER OTHER SECTIONS.
- 5. DAMAGE TO OTHER IMPROVEMENTS - CONTRACTOR SHALL REPLACE OR REPAIR DAMAGE TO GRADING, SOIL PREPARATION, SEEDING, SOD, OR PLANTING DONE UNDER OTHER SECTIONS DURING WORK ASSOCIATED WITH INSTALLATION OF IRRIGATION SYSTEM AT NO ADDITIONAL COST TO OWNER.

C. PRE-CONSTRUCTION CONFERENCE - CONTRACTOR SHALL SCHEDULE AND CONDUCT A CONFERENCE TO REVIEW IN DETAIL QUALITY CONTROL AND CONSTRUCTION REQUIREMENTS FOR EQUIPMENT, MATERIALS, AND SYSTEMS USED TO PERFORM THE WORK. CONFERENCE SHALL BE SCHEDULED NOT LESS THAN 10 DAYS PRIOR TO COMMENCEMENT OF WORK. ALL PARTIES REQUIRED TO BE IN ATTENDANCE SHALL NOTIFY NO LATER THAN 7 DAYS PRIOR TO DATE OF CONFERENCE. CONTRACTOR SHALL NOTIFY QUALIFIED REPRESENTATIVES OF EACH PARTY CONCERNED WITH THAT PORTION OF WORK TO ATTEND CONFERENCE, INCLUDING BUT NOT LIMITED TO ARCHITECT, OWNER'S REPRESENTATIVE, CONTRACTOR'S SUPERINTENDENT, AND INSTALLER.

- 1. MINUTES OF CONFERENCE SHALL BE RECORDED AND DISTRIBUTED BY CONTRACTOR TO ALL PARTIES IN ATTENDANCE WITHIN FIVE DAYS OF CONFERENCE.

1.05 SUBMITTALS - PREPARE AND MAKE SUBMITTALS IN ACCORDANCE WITH CONDITIONS OF THE CONTRACT.

A. MATERIALS LIST:

- 1. SUBMIT A COMPLETE MATERIALS LIST INDICATING MANUFACTURER, MODEL NUMBER, COST PER ITEM AND DESCRIPTION OF ALL MATERIALS AND EQUIPMENT TO BE USED. SHOW APPROPRIATE DIMENSIONS AND ADEQUATE DETAIL TO ACCURATELY PORTRAY INTENT OF CONSTRUCTION.

B. RECORD DRAWINGS (AS BUILT):

- 1. AT ONSET OF IRRIGATION INSTALLATION SECURE MYLAR PRINTS OF ORIGINAL IRRIGATION DESIGN FROM OWNER. AT THE END OF EVERY DAY, REVISE PRINTS FOR WORK ACCOMPLISHED THAT DAY IN RED INK. A PRINT OF RECORD PLAN(S) SHALL BE AVAILABLE AT PROJECT SITE. INDICATE ZONING CHANGES ON WEEKLY AS-BUILT DRAWINGS. INDICATE NON-PRESSURE PIPING CHANGES ON AS-BUILTS. UPON COMPLETION OF PROJECT, SUBMIT FOR REVIEW, PRIOR TO FINAL ACCEPTANCE, FINAL SET OF AS-BUILT MYLAR PLANS. DIMENSIONS, FROM TWO PERMANENT POINTS OF REFERENCE (BUILDING CORNERS, SIDEWALK, ROAD INTERSECTIONS OR PERMANENT STRUCTURES), LOCATION OF THE FOLLOWING ITEMS:
  - a. CONNECTION TO EXISTING WATER LINES
  - b. ROUTING OF SPRINKLER PRESSURE LINES (DIMENSION MAXIMUM 100 FEET ALONG ROUTING)
  - c. MASTER CONTROL VALVES
  - d. SPRINKLER CONTROL VALVES
  - e. QUICK COUPLING VALVES

- f. DRAIN VALVES
- g. DRIP LINE BLOW-OUT STUBS
- h. CONTROL WIRE ROUTING IF NOT WITH PRESSURE MAINLINE
- i. GATE VALVES
- j. CONTROL WIRE SPLICES

2. OWNER'S REPRESENTATIVE WILL NOT CERTIFY ANY PAY REQUEST SUBMITTED BY THE CONTRACTOR IF THE AS-BUILT DRAWINGS ARE NOT CURRENT, AND PROCESSING OF PAY REQUEST WILL NOT OCCUR UNTIL AS-BUILTS ARE UPDATED.

C. OPERATION INSTRUCTIONS - SUBMIT 3 COPIES OF WRITTEN OPERATING INSTRUCTIONS INCLUDING WINTERIZATION PROCEDURES AND START-UP, WITH CUT SHEETS OF PRODUCTS, AND COORDINATION CONTROLLER/WATERING OPERATION INSTRUCTION WITH OWNER'S MAINTENANCE PERSONNEL.

1. CONTROLLER CHARTS:

- a. DO NOT PREPARE CHARTS UNTIL RECORD (AS-BUILT) DRAWINGS HAVE BEEN REVIEWED BY OWNER'S REPRESENTATIVE.
- b. PROVIDE ONE CONTROLLER CHART FOR EACH AUTOMATIC CONTROLLER INSTALLED.
  - 1) CHART MAY BE REPRODUCTION OF RECORD DRAWING IF SCALE PERMITS FITTING OF CONTROLLER DOOR. IF PHOTO REDUCTION PRINTS ARE REQUIRED, KEEP REDUCTION TO MAXIMUM SIZE POSSIBLE TO RETAIN FULL LEGIBILITY.
  - 2) CHART SHALL BE PRINT OF ACTUAL "AS-BUILT" SYSTEM, SHOWING AREA COVERED BY THAT CONTROLLER.
- c. IDENTIFY AREA OF COVERAGE OF EACH REMOTE CONTROL VALVE, USING A DISTINCTLY DIFFERENT PASTEL COLOR DRAWING OVER ENTIRE AREA OF COVERAGE.
- d. FOLLOWING REVIEW OF CHARTS BY OWNER'S REPRESENTATIVE, THEY SHALL BE HERMETICALLY SEALED BETWEEN TWO LAYERS OF 20 MM THICK PLASTIC SHEETS.
- e. CHARTS SHALL BE COMPLETED AND REVIEWED PRIOR TO FINAL REVIEW OF IRRIGATION SYSTEM.

1.06 DELIVERY, STORAGE AND HANDLING - DELIVER, UNLOAD, STORE AND HANDLE MATERIALS, PACKAGING AND BUNDLING PRODUCTS IN A DRY, WEATHERPROOF CONDITION TO PREVENT DAMAGE, BREAKAGE, DETERIORATION, INTRUSION, IGNITION AND VANDALISM. DELIVER IN ORIGINAL UNOPENED PACKAGING CONTAINERS PROMINENTLY DISPLAYING MANUFACTURER'S NAME, VOLUME, QUANTITY, CONTENTS, INSTRUCTIONS AND CONFORMANCE TO LOCAL, STATE AND FEDERAL LAWS. REMOVE AND REPLACE CRACKED, BROKEN OR CONTAMINATED ITEMS OR ELEMENTS PREMATURELY EXPOSED TO MOISTURE, INCLEMENT WEATHER, SNOW, ICE, TEMPERATURE EXTREMES, FIRE OR JOBSITE DAMAGE.

A. HANDLING OF PVC PIPE - EXERCISE CARE IN HANDLING, LOADING AND STORING OF PVC PIPE. ALL PVC PIPE SHALL BE TRANSPORTED IN A VEHICLE WHICH ALLOWS LENGTH OF PIPE TO LIE FLAT SO AS NOT TO SUBJECT IT TO UNDUE BENDING OR CONCENTRATED EXTERNAL LOADS. ALL SECTIONS OF PIPE THAT HAVE BEEN DENTED OR DAMAGED SHALL BE DISCARDED, AND IF INSTALLED, SHALL BE REPLACED WITH NEW PIPING.

1.07 JOBSITE CONDITIONS

A. PROTECTION OF PROPERTY:

- 1. PRESERVE AND PROTECT ALL TREES, PLANTS, SURVEY MONUMENTS, STRUCTURES, AND PAVED AREAS FROM DAMAGE DUE TO WORK OF THIS SECTION. IN THE EVENT DAMAGE DOES OCCUR, ALL DAMAGE TO INANIMATE AND LIVING ITEMS SHALL BE COMPLETELY REPAIRED OR REPLACED TO SATISFACTION OF OWNER. ALL COSTS OF SUCH REPAIRS SHALL BE CHARGED TO AND PAID BY CONTRACTOR.
- 2. PROTECT BUILDINGS, WALKS, WALLS AND OTHER PROPERTY FROM DAMAGE. FLARE AND BARRICADE OPEN DITCHES. DAMAGE CAUSED TO ASPHALT, CONCRETE, OR OTHER BUILDING MATERIAL SURFACES SHALL BE REPAIRED OR REPLACED AT NO COST TO OWNER. RESTORE DISTURBED AREAS TO ORIGINAL CONDITION.

B. EXISTING TREES:

- 1. ALL TRENCHING OR OTHER WORK UNDER LIMB SPREAD OF ANY AND ALL EVERGREENS OR LOW BRANCHING DECIDUOUS MATERIAL SHALL BE DONE BY HAND OR BY OTHER METHODS SO AS TO PREVENT DAMAGE TO LIMBS OR BRANCHES.

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IRRIGATION SPECIFICATIONS

# IRRIGATION



2. WHERE IT IS NECESSARY TO EXCAVATE ADJACENT TO EXISTING TREES, USE ALL POSSIBLE CARE TO AVOID INJURY TO TREES AND TREE ROOTS.

C. PROTECTION AND REPAIR OF UNDERGROUND LINES:

1. REQUEST PROPER UTILITY COMPANY TO LOCATE AND MARK THE EXACT LOCATION (INCLUDING DEPTH) OF ALL UNDERGROUND ELECTRIC, GAS OR TELEPHONE LINES. TAKE WHATEVER PRECAUTIONS ARE NECESSARY TO PROTECT THESE UNDERGROUND LINES FROM DAMAGE. IF DAMAGE DOES OCCUR, UTILITY OWNER SHALL REPAIR ALL DAMAGES. CONTRACTOR SHALL PAY ALL COSTS OF SUCH REPAIRS UNLESS OTHER ARRANGEMENTS HAVE BEEN MADE.

D. REPLACEMENT OF PAVING AND CURBS - WHERE TRENCHES AND LINES CROSS EXISTING ROADWAYS, SIDEWALKS, CURBING, ETC., DAMAGE TO THESE SHALL BE KEPT TO A MINIMUM AND SHALL BE RESTORED TO ORIGINAL CONDITION.

1.08 WARRANTY/GUARANTY - MANUFACTURER SHALL WARRANT MATERIALS AGAINST DEFECTS FOR A PERIOD OF TWO YEARS FROM THE DATE OF SUBSTANTIAL COMPLETION. INSTALLER(S) SHALL GUARANTY WORKMANSHIP IN ACCORDANCE WITH CDOT STANDARD SPECIFICATIONS.

A. SETTLING OF BACKFILLED TRENCHES THAT MAY OCCUR DURING GUARANTY PERIOD SHALL BE REPAIRED AT NO EXPENSE TO OWNER, INCLUDING COMPLETE RESTORATION OF DAMAGED PROPERTY.

B. EXPENSES DUE TO VANDALISM BEFORE SUBSTANTIAL COMPLETION SHALL BE BORNE BY CONTRACTOR.

C. OWNER WILL MAINTAIN TURF AND PLANTING AREAS DURING WARRANTY PERIOD, SO AS NOT TO HAMPER PROPER OPERATION OF IRRIGATION SYSTEM.

1.09 MAINTENANCE

A. FURNISH THE FOLLOWING MAINTENANCE ITEMS TO OWNER PRIOR TO FINAL ACCEPTANCE:

1. 2 SETS OF SPECIAL TOOLS REQUIRED FOR REMOVING, DISASSEMBLING, AND ADJUSTING EACH TYPE OF SPRINKLER HEAD AND VALVE SUPPLIED ON THIS PROJECT.
2. 2 SIX FOOT VALVE KEYS FOR OPERATION OF GATE VALVES OR STOP AND WASTE VALVES.
3. 2 KEYS FOR EACH AUTOMATIC CONTROLLER.
4. 2 QUICK COUPLER KEYS AND 2 MATCHING HOSE SWIVELS FOR EACH TYPE OF QUICK COUPLING VALVE INSTALLED.
5. ALUMINUM DRAIN VALVE KEYS OF SUFFICIENT LENGTH FOR OPERATION OF DRAIN VALVES.

PART II - PRODUCTS

2.01 MATERIALS

A. GENERAL PIPING:

1. PRESSURE SUPPLY LINES (DOWNSTREAM OF BACKFLOW PREVENTION UNITS) - SCH. 40 PVC.
2. NON-PRESSURE LINES - CLASS 200 PVC.
3. PVC SLEEVING - SCH. 40 PVC.
4. DRIP TUBING - AS RECOMMENDED BY THE CITY OF PUEBLO.
5. EMITTER TUBING - AS RECOMMENDED BY THE CITY OF PUEBLO.

B. PLASTIC PIPE AND FITTINGS:

1. IDENTIFICATION MARKINGS:

- a. IDENTIFY ALL PIPES WITH THE FOLLOWING MARKINGS:

- 1) MANUFACTURER'S NAME
- 2) NOMINAL PIPE SIZE
- 3) SCHEDULE OF CLASS
- 4) PRESSURE RATING
- 5) NSF (NATIONAL SANITATION FOUNDATION) SEAL OF APPROVAL
- 6) DATE OF EXTRUSION

C. SOLVENT WELD PIPE - MANUFACTURED FROM VIRGIN POLYVINYL CHLORIDE (PVC) COMPOUND IN ACCORDANCE WITH ASTM D2241 AND ASTM D1784; CELL CLASSIFICATION 12454-B, TYPE 1, GRADE 1.

1. FITTINGS - STANDARD SCHEDULE 40, INJECTION MOLDED PVC; COMPLYING WITH ASTM D1784 AND D2466, CELL CLASSIFICATION 12454-B
  - a. THREADS - INJECTION MOLDED TYPE (WHERE REQUIRED)
2. THREADED NIPPLES - ASTM D2464, SCHEDULE 80 WITH MOLDED THREADS
3. JOINT CEMENT AND PRIMER - TYPE AS RECOMMENDED BY MANUFACTURER OF PIPE AND FITTINGS

D. DRIP IRRIGATION SYSTEM:

1. DRIP TUBING - MANUFACTURED OF FLEXIBLE VINYL CHLORIDE COMPOUND CONFORMING TO ASTM D1248, TYPE 1, CLASS C, CATEGORY 4, P14 AND ASTM D3350 FOR PE 122111C.
2. FITTINGS - TYPE AND MAKE RECOMMENDED BY TUBING MANUFACTURER.
3. DRIP VALVE ASSEMBLY - TYPE AND SIZE TO BE SHOWN ON DESIGN SUBMITTAL.
  - a. PR FILTER - PLASTIC CONSTRUCTION WITH 200 MESH (75 MICRON) NYLON SCREEN AND ½ INCH BLOWOUT ASSEMBLY. PRESSURE REDUCTION IS INCLUDED IN THE FILTER.
  - b. CONTROL VALVE - 2 WAY, SOLENOID PILOT OPERATED TYPE MADE OF SYNTHETIC, NON-CORROSIVE MATERIAL; DIAPHRAGM ACTIVATED AND SLOW CLOSING. INCLUDE FREELY PIVOTED SEAT SEAL; RETAINED (MOUNTED) WITHOUT ATTACHMENT TO DIAPHRAGM.
4. DRIPLINE TUBING - PRESSURE COMPENSATING WITH BUILT IN CHECK VALVE. DRIPPER SHALL HAVE A FLOW RATE OF 0.6 GPH AND A DRIPPER SPACING OF 12".

E. GATE VALVES - GATE VALVES FOR ¾ INCH THROUGH 2-1/2 INCH PIPE - BRASS CONSTRUCTION - SOLID WEDGE, IPS THREADS, AND NON-RISING STEM WITH WHEEL OPERATING HANDLE.

F. QUICK COUPLING VALVES - BRASS TWO-PIECE BODY DESIGNED FOR WORKING PRESSURE OF 150 PSI; OPERABLE WITH QUICK COUPLER. EQUIP QUICK COUPLER WITH LOCKING RUBBER COVER.

G. VALVE BOXES - VALVE BOXES SHALL BE SIZED APPROPRIATELY TO THE EQUIPMENT THEY CONTAIN PER THE MANUFACTURER'S RECOMMENDATION. ALL DRIP VALVE ASSEMBLIES SHALL HAVE JUMBO SIZED VALVE BOXES.

H. ELECTRICAL CONTROL WIRING:

1. LOW VOLTAGE:
2. ELECTRICAL CONTROL WIRE - AMERICAN WIRE GAUGE (AWG) NO. 14 SOLID COPPER, TYPE UF CABLE, WHICH IS UL APPROVED FOR DIRECT UNDERGROUND BURIAL, IF REQUIRED TO OPERATE SYSTEM AS DESIGNED.
3. WIRE COLORS:
  - a. CONTROL WIRES - RED
  - b. COMMON WIRES - WHITE
  - c. MASTER VALVE WIRES - BLUE
  - d. SPARE CONTROL WIRES - BLACK
  - e. SPARE COMMON WIRES - YELLOW
4. IF MULTIPLE CONTROLLERS ARE UTILIZED, AND WIRE PATHS OF DIFFERENT CONTROLLERS CROSS EACH OTHER, BOTH COMMON AND CONTROL WIRES FROM EACH CONTROLLER SHALL BE DIFFERENT COLORS APPROVED BY OWNER'S REPRESENTATIVE.
5. CONTROL WIRE CONNECTIONS AND SPLICES SHALL BE MADE WITH A DIRECT BURY SPLICE, CONNECTORS, OR SIMILAR DRY SPLICE METHOD.
6. HIGH VOLTAGE - TYPE REQUIRED BY LOCAL CODES AND ORDINANCES, OF PROPER SIZE TO ACCOMMODATE NEEDS OF EQUIPMENT SERVICED.

I. AUTOMATIC CONTROLLER - AUTOMATIC CONTROLLER SIZE AND TYPE SHALL ACCOMMODATE ALL COMPONENTS INSTALLED ON THE PROJECT PLUS AN ADDITIONAL TEN CONNECTIONS FOR FUTURE EXPANSION. AUTOMATIC CONTROLLER SHALL BE EQUIPPED WITH RAIN SENSOR CAPABILITY.

J. MASTER CONTROL VALVES - SIZE AND TYPE AS REQUIRED BY SYSTEM DESIGN.

K. ELECTRIC CONTROL VALVES - SIZE AND TYPE AS REQUIRED BY SYSTEM DESIGN.

L. SPRINKLER HEADS - SIZE AND TYPE AS REQUIRED BY SYSTEM DESIGN. SPRAY HEADS IN NATIVE SEED AREAS SHALL HAVE A MINIMUM RISER OF 6". FABRICATED RISER UNITS SHALL HAVE RISER NIPPLES OF SAME SIZE AS RISER OPENING IN SPRINKLER BODY.

M. BACKFLOW PREVENTER - SIZE AND TYPE AS REQUIRED BY SYSTEM DESIGN; BRASS CONSTRUCTION WITH 150 PSI WORKING PRESSURE.

2.02 ACCEPTANCE

ALL IRRIGATION COMPONENTS SHALL BE APPROVED BY THE CITY OF PUEBLO PRIOR TO USE ON THE PROJECT. CONTACT THE CITY OF PUEBLO FOR SPECIFIC MATERIALS RECOMMENDED OR REQUIRED.

PART III - EXECUTION

3.01 COORDINATION WITH CITY OF PUEBLO PARKS DEPARTMENT - THE CONTRACTOR SHALL MEET AND COORDINATE WITH THE APPROPRIATE CITY PARKS DEPARTMENT SUPERVISOR FOR THE NEW, REPLACED OR REPAIRED IRRIGATION SYSTEM AS ASSOCIATED WITH THIS PROJECT AND THE PLANS AND SPECIFICATIONS.

3.02 LANDSCAPE PLAN REVIEW AND COORDINATION - CONTRACTOR WILL BE HELD RESPONSIBLE FOR COORDINATION BETWEEN LANDSCAPE AND IRRIGATION SYSTEM INSTALLATION. LANDSCAPE MATERIAL LOCATIONS SHOWN ON THE LANDSCAPE PLAN SHALL TAKE PRECEDENCE OVER THE IRRIGATION SYSTEM EQUIPMENT LOCATIONS. IF IRRIGATION EQUIPMENT IS INSTALLED IN CONFLICT WITH THE LANDSCAPE MATERIAL LOCATIONS SHOWN ON THE LANDSCAPE PLAN, THE CONTRACTOR WILL BE REQUIRED TO RELOCATE THE IRRIGATION EQUIPMENT, AS NECESSARY, AT CONTRACTOR'S EXPENSE.

3.03 STATIC PRESSURE VERIFICATION - CONTRACTOR SHALL FIELD VERIFY THE STATIC PRESSURE AT THE PROJECT SITE, PRIOR TO COMMENCING WORK OR ORDERING IRRIGATION MATERIALS, AND SUBMIT FINDINGS, IN WRITING, TO OWNER'S REPRESENTATIVE. IF CONTRACTOR FAILS TO VERIFY STATIC WATER PRESSURE PRIOR TO COMMENCING WORK OR ORDERING IRRIGATION MATERIALS, CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ALL COSTS REQUIRED TO MAKE SYSTEM OPERATIONAL AND THE COSTS REQUIRED TO REPLACE ANY DAMAGED LANDSCAPE MATERIAL. DAMAGE SHALL INCLUDE ALL REQUIRED MATERIAL COSTS, DESIGN COSTS AND PLANT REPLACEMENT COSTS.

3.04 INSPECTION - EXAMINE AREAS AND CONDITIONS UNDER WHICH WORK OF THIS SECTION IS TO BE PERFORMED. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

B. GRADING OPERATIONS, WITH THE EXCEPTION OF FINAL GRADING, SHALL BE COMPLETED AND APPROVED BY OWNER BEFORE STAKING OR INSTALLATION OF ANY IRRIGATION SYSTEM BEGINS.

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IRRIGATION SPECIFICATIONS

### 3.05 PREPARATION

#### A. STAKING SHALL OCCUR AS FOLLOWS:

1. MARK, WITH POWDERED LIME, ROUTING OF PRESSURE SUPPLY LINE AND FLAG HEADS FOR FIRST FEW ZONES. CONTACT OWNER'S REPRESENTATIVE 48 HOURS IN ADVANCE AND REQUEST REVIEW OF STAKING. OWNER'S REPRESENTATIVE WILL ADVISE INSTALLER AS TO THE AMOUNT OF STAKING TO BE PREPARED. OWNER'S REPRESENTATIVE WILL REVIEW STAKING AND DIRECT CHANGES IF REQUIRED. REVIEW DOES NOT RELIEVE INSTALLER FROM COVERAGE PROBLEMS DUE TO IMPROPER PLACEMENT OF HEADS AFTER STAKING.
  2. IF PROJECT HAS SIGNIFICANT TOPOGRAPHY, FREEFORM PLANTING BEDS, OR OTHER AMENITIES THAT COULD REQUIRE ALTERATION OF IRRIGATION EQUIPMENT LAYOUT AS DEEMED NECESSARY BY OWNER'S REPRESENTATIVE, DO NOT INSTALL IRRIGATION EQUIPMENT IN THESE AREAS UNTIL OWNER'S REPRESENTATIVE HAS APPROVED EQUIPMENT STAKING.
- B. INSTALL SLEEVING UNDER ASPHALT PAVING AND CONCRETE WALKS, PRIOR TO CONCRETING AND PAVING OPERATIONS, TO ACCOMMODATE PIPING AND WIRING. COMPACT BACKFILL AROUND SLEEVES TO 95% MODIFIED PROCTOR DENSITY WITHIN 2% OF OPTIMUM MOISTURE CONTENT IN ACCORDANCE WITH ASTM D1557.
- C. TRENCHING - DIG TRENCHES STRAIGHT AND SUPPORT PIPE CONTINUOUSLY ON BOTTOM OF TRENCH. TRENCH BOTTOM SHALL BE CLEAN AND SMOOTH WITH ALL ROCK AND ORGANIC DEBRIS REMOVED.

#### 1. CLEARANCES:

- a. PIPING 3 INCHES AND LARGER - MAKE TRENCHES OF SUFFICIENT WIDTH (14 INCHES MINIMUM) TO PROPERLY ASSEMBLE AND POSITION PIPE IN TRENCH. MINIMUM CLEARANCE OF PIPING 3 INCHES OR LARGER SHALL BE 5 INCHES HORIZONTALLY ON BOTH SIDES OF THE TRENCH.
  - b. PIPING SMALLER THAN 3 INCHES - TRENCHES SHALL HAVE A MINIMUM WIDTH OF 7 INCHES.
  - c. LINE CLEARANCE - PROVIDE NOT LESS THAN 6 INCHES OF CLEARANCE BETWEEN EACH LINE, AND NOT LESS THAN 12 INCHES OF CLEARANCE BETWEEN LINES OF OTHER TRADES.
2. BORING WILL BE PERMITTED ONLY WHERE PIPE MUST PASS UNDER OBSTRUCTION(S) WHICH CANNOT BE REMOVED. IN BACKFILLING BORE, FINAL DENSITY OF BACKFILL SHALL MATCH THAT OF SURROUNDING SOIL. IT IS ACCEPTABLE TO USE SLEEVES OF SUITABLE DIAMETER INSTALLED FIRST BY JACKING OR BORING, AND PIPE LAID THROUGH SLEEVES. OBSERVE SAME PRECAUTIONS AS THOUGH PIPE WERE INSTALLED IN OPEN TRENCH.
3. VIBRATORY PLOW - NON-PRESSURE PIPING MAY BE INSTALLED THROUGH USE OF VIBRATORY PLOW METHOD IF OWNER'S REPRESENTATIVE DETERMINES SOIL CONDITIONS ARE SATISFACTORY FOR THIS METHOD OF INSTALLATION. VIBRATORY PLOWING DOES NOT RELIEVE INSTALLER OF MINIMUM PIPE DEPTHS.

### 3.06 INSTALLATION

#### A. LOCATE OTHER EQUIPMENT AS NEAR AS POSSIBLE TO LOCATIONS DESIGNATED. DEVIATIONS SHALL BE REVIEWED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

#### B. PVC PIPING - SNAKE PIPE IN TRENCH AS MUCH AS POSSIBLE TO ALLOW FOR EXPANSION AND CONTRACTION. DO NOT INSTALL PIPE WHEN AIR TEMPERATURE IS BELOW 40° F. PLACE MANUAL DRAIN VALVES AT LOW POINTS AND DEAD ENDS OF PRESSURE SUPPLY PIPING TO INSURE COMPLETE DRAINAGE OF SYSTEM. WHEN PIPE LAYING IS NOT IN PROGRESS, OR AT THE END OF EACH DAY, CLOSE PIPE ENDS WITH TIGHT PLUG OR CAP. PERFORM WORK IN ACCORDANCE WITH GOOD PRACTICES PREVAILING IN PIPING TRADES

#### 1. SOLVENT WELD PVC PIPE - LAY PIPE AND MAKE ALL PLASTIC TO PLASTIC JOINTS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

#### C. DRIP TUBING:

1. MAKE ALL FITTING CONNECTIONS AS PER MANUFACTURER'S RECOMMENDATIONS.
2. USE ONLY MANUFACTURER PROVIDED OR RECOMMENDED HOLE PUNCH WHEN MAKING PENETRATIONS IN DRIP TUBING FOR INSERT FITTINGS. USE OF ANY OTHER HOLE PUNCH

SHALL BE CAUSE FOR IMMEDIATE REMOVAL AND REPLACEMENT OF ALL INSTALLED DRIP TUBING.

#### 3. INSTALL DRIP LINE BLOWOUT STUBS AT ALL DEAD ENDS OF DRIP TUBING.

#### D. CONTROL WIRING:

##### 1. LOW VOLTAGE WIRING:

- a. BURY CONTROL WIRING BETWEEN CONTROLLER AND ELECTRIC VALVES IN PRESSURE SUPPLY LINE TRENCHES, STRUNG AS CLOSE AS POSSIBLE TO MAIN PIPE LINES WITH SUCH WIRES TO BE CONSISTENTLY LOCATED BELOW AND TO ONE SIDE OF PIPE, OR IN SEPARATE TRENCHES.
- b. BUNDLE ALL 24 VOLT WIRES AT 10 FOOT INTERVALS AND LAY WITH PRESSURE SUPPLY LINE PIPE TO ONE SIDE OF THE TRENCH.
- c. PROVIDE AN EXPANSION LOOP AT EVERY PRESSURE PIPE ANGLE FITTING, EVERY ELECTRIC CONTROL VALVE LOCATION (IN VALVE BOX), AND EVERY 500 FEET. FORM EXPANSION LOOP BY WRAPPING WIRE AT LEAST 8 TIMES AROUND A ¼ INCH PIPE AND WITHDRAWING PIPE.
- d. MAKE ALL SPLICES AND E.C.V. CONNECTIONS USING A DRY SPLICE METHOD.
- e. INSTALL ALL CONTROL WIRE SPLICES NOT OCCURRING AT CONTROL VALVE IN A SEPARATE SPLICE VALVE BOX.
- f. INSTALL ONE CONTROL WIRE FOR EACH CONTROL VALVE.
- g. RUN FIVE SPARE #14 AWG, TYPE UF CABLE, UL APPROVED FOR DIRECT UNDERGROUND BURIAL, CONTROL WIRES AND ONE COMMON WIRE FROM CONTROLLER PEDESTAL TO THE END OF EACH AND EVERY LEG OF MAINLINE. LABEL SPARE WIRES AT CONTROLLER AND WIRE STUB BOX.

##### 2. HIGH VOLTAGE WIRING FOR AUTOMATIC CONTROLLER:

- a. PROVIDE 120 VOLT POWER CONNECTION TO AUTOMATIC CONTROLLER.
- b. ALL ELECTRIC WORK SHALL CONFORM TO LOCAL CODES, ORDINANCES AND AUTHORITIES HAVING JURISDICTION. ALL HIGH VOLTAGE ELECTRICAL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.

#### E. AUTOMATIC CONTROLLER:

1. INSTALL CONTROLLER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND IN A LOCATION APPROVED BY THE CITY OF PUEBLO.
2. CONNECT REMOTE CONTROL VALVES TO CONTROLLER IN NUMERICAL SEQUENCE BASED ON THE LINEAR PROGRESSION OF MAIN LINE.
3. FINAL LOCATION OF CONTROLLER SHALL BE APPROVED BY THE CITY OF PUEBLO PRIOR TO INSTALLATION.
4. EACH CONTROLLER SHALL BE A DEDICATED SEPARATE GROUND WIRE AND GROUNDING ROD AS DETAILED.
5. ALL ABOVE GROUND CONDUIT SHALL BE RIGID GALVANIZED WITH APPROPRIATE FITTINGS. ALL BELOW GROUND CONDUIT SHALL BE SCHEDULE 40 PVC.

#### F. MASTER CONTROL VALVES - INSTALL CROSS-HANDLE 3 INCHES BELOW FINISHED GRADE. WHEN GROUPED TOGETHER, ALLOW AT LEAST 12 INCHES BETWEEN VALVE BOX SIDES. INSTALL EACH REMOTE CONTROL VALVE IN A SEPARATE VALVE BOX. INSTALL INDIVIDUAL VALVE BOX FLUSH WITH GRADE.

#### G. ELECTRIC CONTROL VALVES - INSTALL CROSS-HANDLE 3 INCHES BELOW FINISHED GRADE. WHEN GROUPED TOGETHER, ALLOW AT LEAST 12 INCHES BETWEEN VALVE BOX SIDES. INSTALL EACH REMOTE CONTROL VALVE IN A SEPARATE VALVE BOX. INSTALL INDIVIDUAL VALVE BOX FLUSH WITH GRADE.

#### H. QUICK COUPLING VALVES - INSTALL QUICK COUPLERS ON DOUBLE SWING-JOINT ASSEMBLIES OF SCHEDULE 80 PVC PIPE; PLUMB AND FLUSH TO GRADE. ANGLED NIPPLE RELATIVE TO PRESSURE SUPPLY LINE SHALL BE NO MORE THAN 45 DEGREES AND NO LESS THAN 10 DEGREES.

#### I. DRIP VALVE ASSEMBLIES - INSTALL DRIP VALVE ASSEMBLY PER MANUFACTURER'S RECOMMENDATIONS. ALL DRIP VALVE ASSEMBLIES SHALL BE A MINIMUM OF A 1 INCH COMMERCIAL ASSEMBLY WITH A GATE VALVE.

#### J. DRIP EMITTERS - STAKE ALL SURFACE EMITTERS PER THE MANUFACTURER'S RECOMMENDATIONS AND STAKED WITH ACCEPTABLE TUBING STAKES.

#### K. DRAIN VALVES - INSTALL MANUAL DRAIN VALVES AT ALL LOW POINTS IN PRESSURE SUPPLY LINE. PROVIDE A THREE CUBIC FOOT DRAINAGE SUMP FOR EACH DRAIN VALVE INSTALLED.

#### L. VALVE BOXES - INSTALL ONE VALVE BOX FOR EACH TYPE OF VALVE INSTALLED. VALVE BOX EXTENSIONS ARE NOT ACCEPTABLE EXCEPT FOR MASTER VALVES. INSTALL GRAVEL SUMP

AFTER COMPACTION OF ALL TRENCHES. PLACE FINAL PORTION OF GRAVEL INSIDE VALVE BOX AFTER VALVE BOX IS BACKFILLED AND COMPACTED. BRAND CONTROLLER LETTER AND STATION NUMBER ON LID OF EACH VALVE BOX. LETTER AND NUMBER SIZE SHALL BE NO SMALLER THAN 1 INCH AND NO GREATER THAN 1 ½ INCHES. DEPTH OF BRANDING SHALL BE NO MORE THAN 1/8 INCH INTO VALVE BOX LID.

#### M. GATE VALVES - INSTALL IN PROPER LOCATION, SIZE AND TYPE AS REQUIRED BY SYSTEM DESIGN.

#### N. SPRINKLER HEADS - INSTALL SPRINKLER HEADS IN PROPER LOCATION AS REQUIRED BY SYSTEM DESIGN AND WHERE STAKED. SET TO FINISH GRADE AS DETAILED. SPACING OF HEADS SHALL NOT EXCEED THE MAXIMUM LENGTH OF SPRAY ARC UNLESS RE-STAKED AS DIRECTED BY OWNER'S REPRESENTATIVE. IN NO CASE SHALL THE SPACING EXCEED THE MAXIMUM RECOMMENDED LENGTH BY MANUFACTURER. INSTALL HEADS ON DOUBLE SWING-JOINT RISERS OF SCHEDULE 40 PVC PIPE. ANGLED NIPPLE RELATIVE TO NON-PRESSURE LINE SHALL BE NO MORE THAN 45 DEGREES OR LESS THAN 10 DEGREES. ADJUST PARTIAL CIRCLE HEADS FOR PROPER COVERAGE. ADJUST HEADS TO CORRECT HEIGHT AFTER SOD IS INSTALLED. PLANT PLACEMENT SHALL NOT INTERFERE WITH INTENDED SPRINKLER HEAD COVERAGE, PIPING OR OTHER EQUIPMENT. OWNER'S REPRESENTATIVE MAY REQUEST NOZZLE CHANGES OR ADJUSTMENTS WITHOUT ADDITIONAL COST TO THE OWNER.

#### O. BACKFLOW PREVENTER - INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND IN A LOCATION APPROVED BY THE CITY OF PUEBLO.

#### P. BACKFILLING - DO NOT BEGIN BACKFILLING OPERATIONS UNTIL REQUIRED SYSTEM TESTS HAVE BEEN COMPLETED. BACKFILLING SHALL NOT BE DONE IN FREEZING WEATHER EXCEPT WITH APPROVAL BY OWNER'S REPRESENTATIVE. LEAVE TRENCHES SLIGHTLY MOUNDED TO ALLOW FOR SETTLEMENT AFTER BACKFILLING IS COMPLETED. TRENCHES SHALL BE FINISH GRADED PRIOR TO WALK-THROUGH OF SYSTEM BY OWNER'S REPRESENTATIVE.

1. MATERIALS - EXCAVATED MATERIAL IS GENERALLY CONSIDERED SATISFACTORY FOR BACKFILL PURPOSES. BACKFILL MATERIAL SHALL BE FREE OF RUBBISH, VEGETABLE MATTER, FROZEN MATERIALS AND STONES LARGER THAN 1 INCH IN MAXIMUM DIMENSION. DO NOT MIX SUBSOIL WITH TOPSOIL. MATERIAL NOT SUITABLE FOR BACKFILL SHALL BE HAULED AWAY. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING SUITABLE BACKFILL IF EXCAVATED MATERIAL IS UNACCEPTABLE OR NOT SUFFICIENT TO MEET BACKFILL, COMPACTION, AND FINAL GRADE REQUIREMENTS.
2. DO NOT LEAVE TRENCHES OPEN FOR A PERIOD OF MORE THAN 48 HOURS. OPEN EXCAVATIONS SHALL BE PROTECTED IN ACCORDANCE WITH OSHA REGULATIONS.
3. COMPACT BACKFILL TO 90% MAXIMUM DENSITY, DETERMINED IN ACCORDANCE WITH ASTM D1557 UTILIZING THE FOLLOWING METHODS:
  - a. MECHANICAL TAMPING
  - b. PUDDLING OR PONDING AND/OR JETTING IS PROHIBITED WITHIN 20'-0" OF BUILDING OR FOUNDATION WALLS.

#### Q. PIPING UNDER PAVING:

1. PROVIDE FOR A MINIMUM COVER OF 18 INCHES BETWEEN THE TOP OF THE PIPE AND THE BOTTOM OF THE AGGREGATE BASE FOR ALL THE PRESSURE AND NON-PRESSURE PIPING INSTALLED UNDER ASPHALTIC CONCRETE OR CONCRETE PAVING.
2. PIPING LOCATED UNDER AREAS WHERE ASPHALT OR CONCRETE PAVING WILL BE INSTALLED SHALL BE BEDDED WITH SAND (A LAYER 6" BELOW PIPE AND 6" ABOVE PIPE).
3. COMPACT BACKFILL MATERIAL IN 6" LIFTS AT 90% MAXIMUM DENSITY DETERMINED IN ACCORDANCE WITH ASTM D1557 USING MANUAL OR MECHANICAL TAMPING DEVICES.
4. SET IN PLACE, CAP AND PRESSURE TEST ALL PIPING UNDER PAVING IN PRESENCE OF OWNER PRIOR TO BACKFILLING AND PAVING OPERATIONS.
5. PIPING UNDER EXISTING WALKS OR CONCRETE PAVEMENT SHALL BE DONE BY JACKING, BORING OR HYDRAULIC DRIVING, BUT WHERE CUTTING OR BREAKING OF WALKS AND/OR CONCRETE IS NECESSARY, IT SHALL BE DONE AND REPLACED AT NOT COST TO OWNER. OBTAIN PERMISSION TO CUT OR BREAK WALKS AND/OR CONCRETE FROM OWNER.

#### D. WATER SUPPLY AND POINT OF CONNECTION - WATER SUPPLY AND POINT OF CONNECTION SHALL BE COORDINATED WITH AND APPROVED BY THE CITY OF PUEBLO.

## I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

# IRRIGATION

## IRRIGATION SPECIFICATIONS



# 9.12

### 3.07 FIELD QUALITY CONTROL

- A. FLUSHING - AFTER PIPING, RISERS AND VALVES ARE IN PLACE AND CONNECTED, BUT PRIOR TO INSTALLATION OF SPRINKLER HEADS, QUICK COUPLER ASSEMBLIES AND HOSE VALVES, THOROUGHLY FLUSH PIPING SYSTEM UNDER FULL HEAD OF WATER PRESSURE FROM DEAD END FITTINGS. MAINTAIN FLUSHING FOR 5 MINUTES THROUGH FURTHERMOST VALVES. CAP RISERS AFTER FLUSHING.
- B. TESTING - CONDUCT TESTS IN PRESENCE OF OWNER'S REPRESENTATIVE, ARRANGE FOR PRESENCE OF OWNER'S REPRESENTATIVE 48 HOURS IN ADVANCE OF TESTING. SUPPLY A HYDROSTATIC PUMP AND ALL OTHER TEST EQUIPMENT.
1. PRIOR TO BACKFILLING, AND AFTER THE INSTALLATION OF ALL CONTROL VALVES, FILL PRESSURE SUPPLY LINE WITH WATER, AND PRESSURIZE TO 40 PSI OVER THE DESIGNATED STATIC PRESSURE OR 120 PSI, WHICHEVER IS GREATER, FOR A PERIOD OF 24 HOURS (24 HOUR TEST).
  2. LEAKAGE, PRESSURE LOSS - TEST IS ACCEPTABLE IF NO LOSS OF PRESSURE IS EVIDENT DURING THE TEST PERIOD.
  3. LEAKS - DETECT AND REPAIR LEAKS.
  4. RETEST SYSTEM UNTIL TEST PRESSURE CAN BE MAINTAINED FOR DURATION OF TEST.
  5. BEFORE FINAL ACCEPTANCE, PRESSURE SUPPLY LINE SHALL REMAIN UNDER PRESSURE FOR A PERIOD OF 48 HOURS.
- C. WALK-THROUGH FOR SUBSTANTIAL COMPLETION:
1. ARRANGE FOR OWNER'S REPRESENTATIVE'S PRESENCE 48 HOURS IN ADVANCE OF WALK-THROUGH.
  2. ENTIRE SYSTEM SHALL BE COMPLETELY INSTALLED AND OPERATIONAL PRIOR TO SCHEDULING OF WALK THROUGH.
  3. OPERATE EACH ZONE IN ITS ENTIRETY FOR OWNER'S REPRESENTATIVE AT TIME OF WALK-THROUGH AND, ADDITIONALLY, OPEN ALL VALVE BOXES IF DIRECTED.
  4. GENERATE A LIST OF ITEMS, AS DISCOVERED, TO BE CORRECTED PRIOR TO FINAL COMPLETION.
  5. FURNISH ALL MATERIALS AND PERFORM ALL WORK REQUIRED TO CORRECT ALL INADEQUACIES OF COVERAGE DUE TO DEVIATIONS FROM CONTRACTED DOCUMENTS.
  6. DURING WALK-THROUGH, EXPOSE ALL DRIP EMITTERS AND DRIPLINE WHILE OPERATING FOR OBSERVATION BY OWNER'S REPRESENTATIVE TO DEMONSTRATE THAT THEY ARE PERFORMING AND INSTALLED AS DESIGNED, PRIOR TO PLACING OF ALL MULCH MATERIAL. SCHEDULE SEPARATE WALK-THROUGH IF NECESSARY.
- D. WALK-THROUGH FOR FINAL COMPLETION:
1. ARRANGE FOR OWNER'S REPRESENTATIVE'S PRESENCE 48 HOURS IN ADVANCE OF WALK-THROUGH.
  2. SHOW EVIDENCE TO OWNER'S REPRESENTATIVE THAT OWNER HAS RECEIVED ALL ACCESSORIES, CHARTS, RECORD DRAWINGS AND EQUIPMENT AS REQUIRED BEFORE FINAL COMPLETION WALK-THROUGH IS SCHEDULED.
  3. OPERATE EACH ZONE IN ITS ENTIRETY FOR OWNER'S REPRESENTATIVE AT TIME OF WALK-THROUGH TO INSURE CORRECTION OF ALL PREVIOUSLY IDENTIFIED INCOMPLETE ITEMS.
  4. ITEMS DEEMED NOT ACCEPTABLE BY OWNER'S REPRESENTATIVE SHALL BE REWORKED TO COMPLETE SATISFACTION OF THE OWNER.
  5. IF AFTER REQUEST TO OWNER'S REPRESENTATIVE FOR WALK-THROUGH FOR FINAL COMPLETION OF IRRIGATION SYSTEM, OWNER'S REPRESENTATIVE FINDS ITEMS DURING WALK-THROUGH WHICH HAVE NOT BEEN PROPERLY ADJUSTED, REWORKED OR REPLACED AS INDICATED ON LIST OF INCOMPLETE ITEMS FROM PREVIOUS WALK-THROUGH, CONTRACTOR SHALL BE CHARGED FOR ALL SUBSEQUENT WALK-THROUGHS. FUNDS WILL BE WITHHELD FROM FINAL PAYMENT AND/OR RETAINAGE TO CONTRACTOR, IN AMOUNT EQUAL TO ADDITIONAL TIME AND EXPENSES REQUIRED BY OWNER'S REPRESENTATIVE TO CONDUCT AND DOCUMENT FURTHER WALK-THROUGHS AS DEEMED NECESSARY TO INSURE COMPLIANCE WITH CONTRACT DOCUMENTS.

### 3.08 ADJUSTING

- A. UPON COMPLETION OF INSTALLATION, "FINE-TUNE" ENTIRE SYSTEM BY REGULATING VALVES, ADJUSTING PATTERNS AND BREAK-UP ARMS AND SETTING PRESSURE REDUCING VALVES AT PRO-PER AND SIMILAR PRESSURE TO PROVIDE OPTIMUM AND EFFICIENT COVERAGE. FLUSH AND ADJUST ALL SPRINKLER HEADS FOR OPTIMUM PERFORMANCE AND TO PREVENT OVERSPRAY ONTO WALKS, ROADWAYS AND BUILDINGS AS MUCH AS POSSIBLE. HEADS OF SAME TYPE SHALL BE OPERATING AT SAME PRESSURE +/- 7%.
- B. IF IT IS DETERMINED THAT IRRIGATION ADJUSTMENTS WILL PROVIDE PROPER COVERAGE, AND IMPROVE WATER DISTRIBUTION AS DETERMINED BY OWNER'S REPRESENTATIVE, CONTRACTOR SHALL MAKE SUCH ADJUSTMENTS PRIOR TO FINAL ACCEPTANCE, AS DIRECTED, AT NO ADDITIONAL COST TO OWNER. ADJUSTMENTS MAY ALSO INCLUDE CHANGES IN NOZZLE SIZES, DEGREES OF ARC AND CONTROL VALVE THROTTLING.
- C. ALL SPRINKLER HEADS SHALL BE SET PERPENDICULAR TO FINISH GRADE UNLESS OTHERWISE DESIGNATED.
- D. AREAS WHICH DO NOT CONFORM TO DESIGNATED OPERATION REQUIREMENTS DUE TO UNAUTHORIZED CHANGES OR POOR INSTALLATION PRACTICES SHALL BE IMMEDIATELY CORRECTED AT NO ADDITIONAL COST TO THE OWNER.
- E. CLEANING - MAINTAIN CONTINUOUS CLEANING OPERATION THROUGHOUT DURATION OF WORK. DISPOSE OF ALL TRASH OR DEBRIS GENERATED BY INSTALLATION OF IRRIGATION SYSTEM, OFF-SITE AT NO ADDITIONAL COST TO OWNER.

END OF SECTION 02815

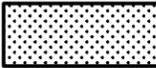
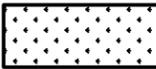
**NATIVE SEED INFORMATION**

EL PASO LOW GROW MIX - PAWNEE BUTTES SEED, INC.

- 20% DACOTAH CERTIFIED SWITCHGRASS
- 10% ROCKY MOUNTAIN FESCUE
- 10% GREEN NEEDLEGRASS, *nassella viridula*
- 10% REVENUA, SLENDER WHEATGRASS
- 10% ROSANA, CERTIFIED WESTERN WHEATGRASS
- 5% NAZPER, CERT, INDIAN RICEGRASS
- 5% SAND DROPSEED
- 5% MT-1 SANDBERG BLUEGRASS
- 5% GOLDAR, BLUEHUNCH WHEATGRASS
- 5% BUTTE, SIDEOATS GRAMA
- 5% BLUE GRAMA
- 5% ITASCA, LITTLE BLUESTEM
- 5% PAWNEE, CERTIFIED BIG BLUESTEM

SEEDING RATES:  
 DRILLED: 25 LBS/ ACRE  
 BROADCAST: 15 LBS/ACRE

**LEGEND:**

-  IRRIGATED SOD
-  IRRIGATED NATIVE SEED
-  NATIVE SEED
-  ROCK MULCH - 1 1/2" ORANGE AND RED HUED ROCK
-  ROCK MULCH - 1 1/2" GRAY HUED NATURAL GRANITE

**GENERAL NOTES**

1. ALL AREAS DISTURBED WITHIN THE CONSTRUCTION LIMITS SHALL BE SEEDED.
2. ALL AREAS DISTURBED AS A RESULT OF DEMOLITION SHALL BE RESEDED. THESE AREAS MAY OR MAY NOT BE INCLUDED IN THE CONSTRUCTION LIMITS.
3. ALL SEEDING EFFORTS INCLUDING EQUIPMENT SHALL REMAIN OUTSIDE OF THE RAILROAD RIGHT-OF-WAY.
4. ROCK MULCH SHALL ACHIEVE A CONTRAST BETWEEN TWO COLOR TONES. ALL ROCK MULCH SHALL BE ANGULAR AND SHALL NOT CONTAIN BASALT OR SLAG MATERIALS.
5. 1 QUART BAG SAMPLES OF ROCK MULCHES SHALL BE SUBMITTED FOR APPROVAL TO CITY OF PUEBLO PRIOR TO MATERIALS ARRIVING ON SITE.



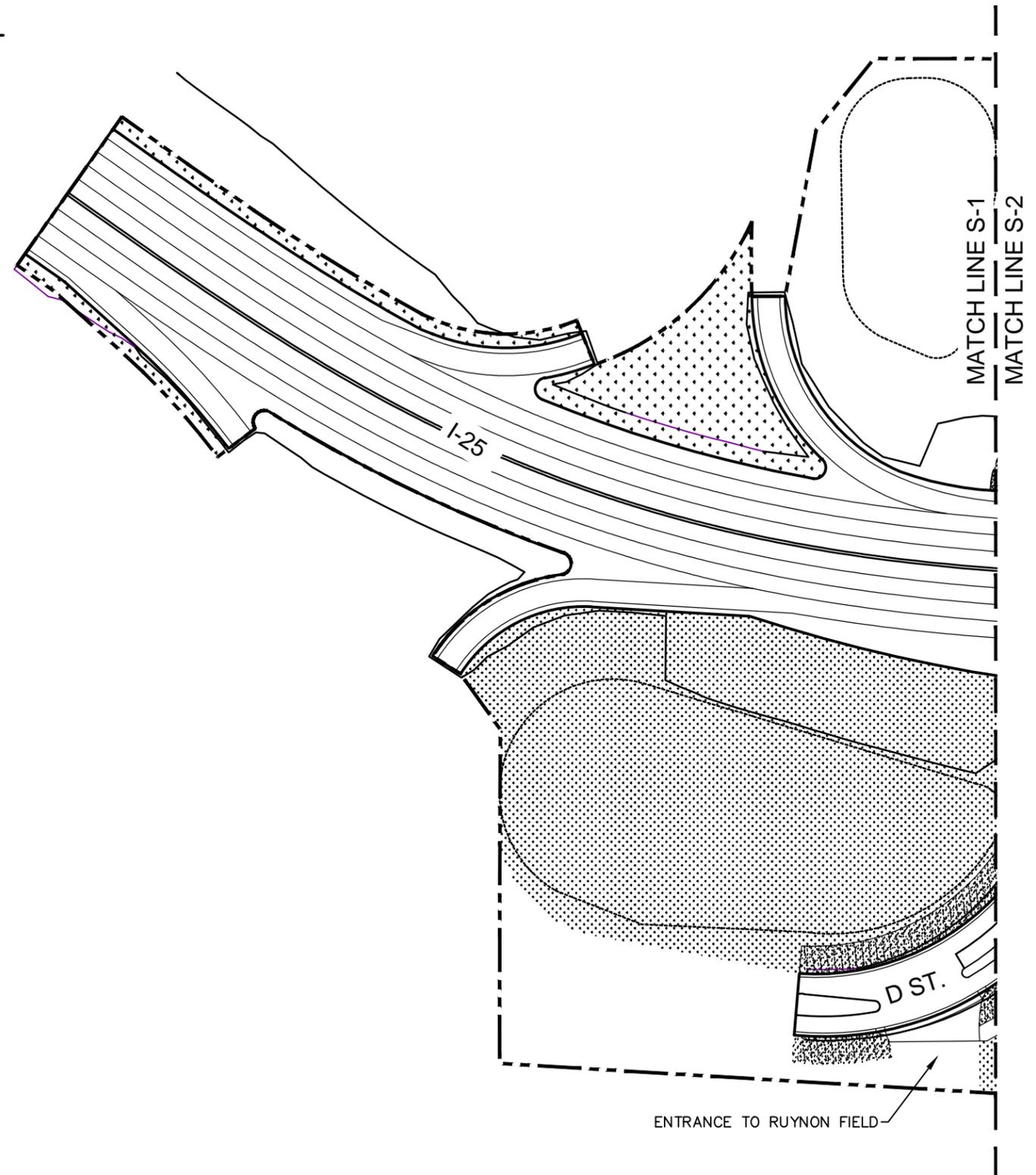
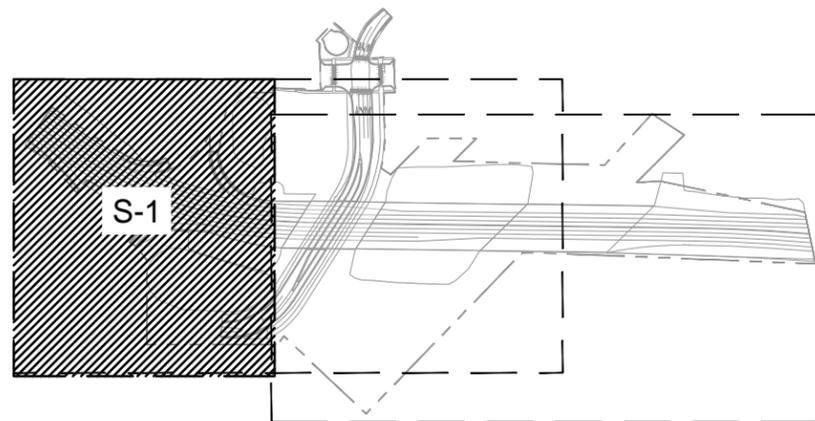
ORANGE AND RED HUED ROCK



GRAY HUED ROCK

EXAMPLE OF ROCK MULCH AND CURB EDGER

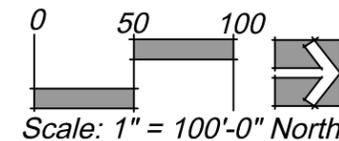
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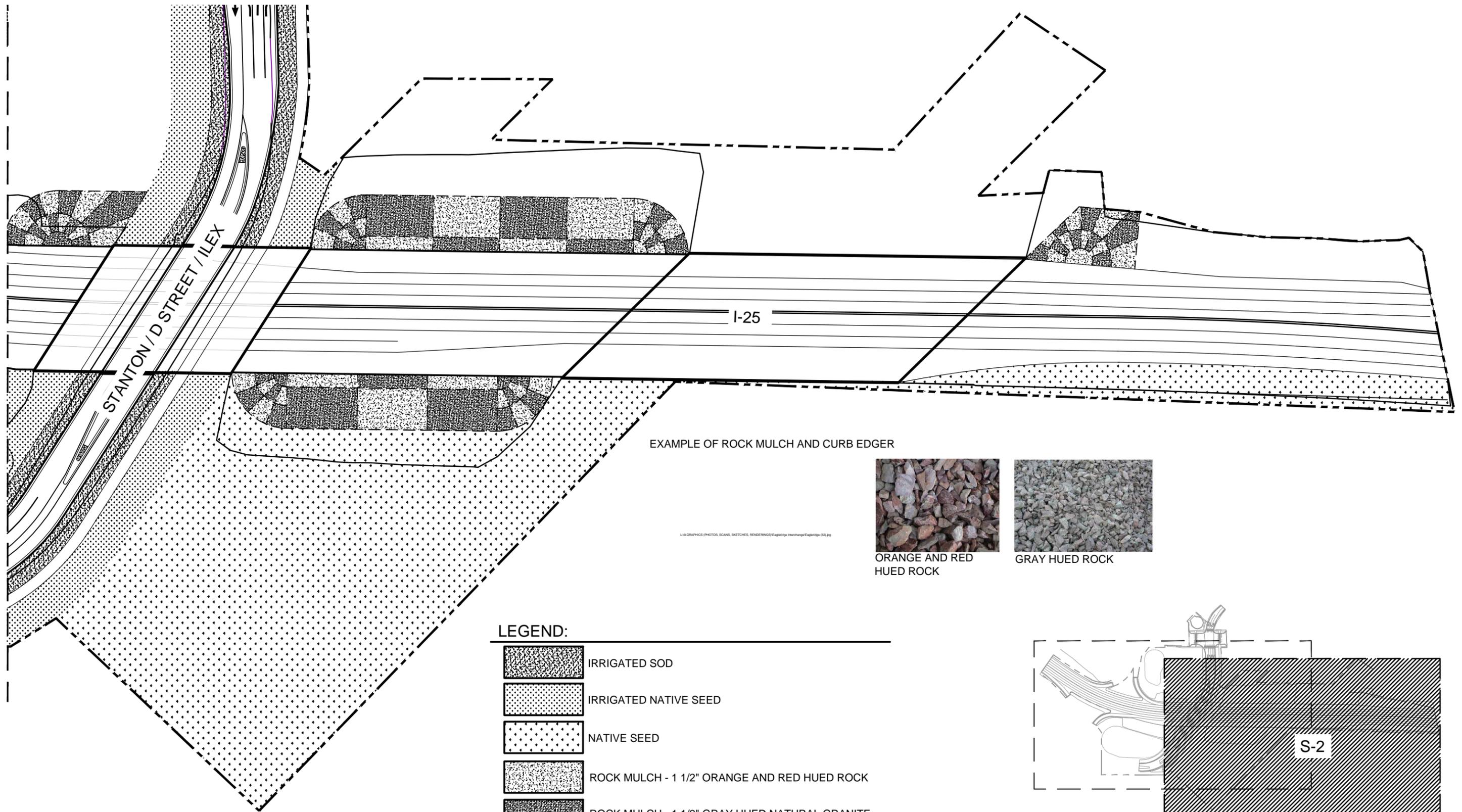
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

SEEDING AND ROCK MULCH PLAN

**SEEDING AND ROCK MULCH - S-1**



10.0



I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

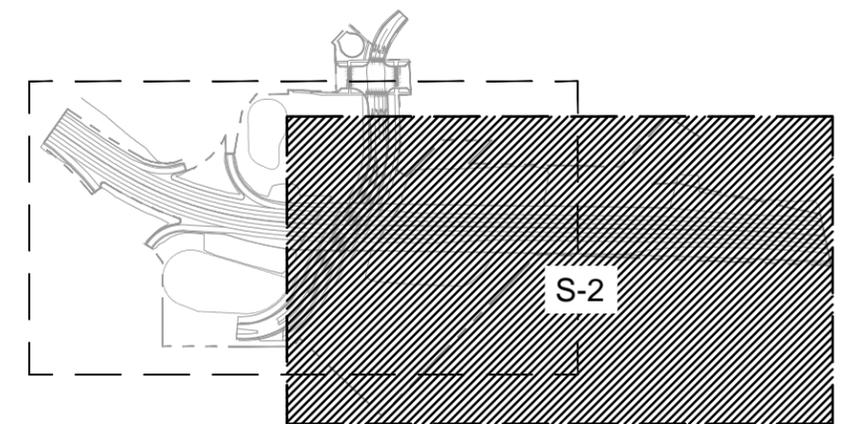
EXAMPLE OF ROCK MULCH AND CURB EDGER



ORANGE AND RED HUED ROCK

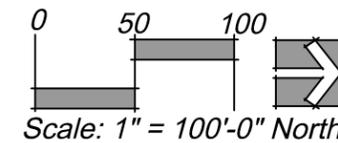


GRAY HUED ROCK



SEEDING AND ROCK MULCH PLAN

# SEEDING AND ROCK MULCH - S-2



10.1

SECTION 02930 - SEEDING

PART 1 - GENERAL

1.01 DESCRIPTION:

A. WORK INCLUDED BUT NOT LIMITED TO:

1. PROVIDE LAWNS AND GRASSED AREAS, COMPLETE AS SHOWN AND AS SPECIFIED INCLUDING SEEDING, MULCHING AND EROSION CONTROL.

B. SUBMITTALS:

1. PRODUCT DATA: SEED MIX, MULCH AND STABILIZER WITH METHOD OF APPLICATION FOR APPROVAL.
2. SAMPLES: ONE PINT EACH OF MULCH, PEAT MOSS, AND SOIL STABILIZER.
3. CERTIFICATES:
  - a. CERTIFICATES OF INSPECTION AS REQUIRED BY LAW FOR TRANSPORTATION OF EACH SHIPMENT OF SEED AND SOD ALONG WITH INVOICES.
  - b. SEED MIX CERTIFICATE (INCLUDING INCORPORATED FERTILIZER AND RATE OF APPLICATION FOR HYDROSEEDING).
  - c. PROVIDE OWNER WITH 2 LBS. OF EACH SEED MIX FOR FUTURE USE.

1.02 DELIVERY, STORAGE, AND HANDLING:

A. SEED:

1. DELIVERY: FURNISH STANDARD SEED IN UNOPENED MANUFACTURER'S STANDARD CONTAINERS BEARING ORIGINAL CERTIFICATION LABELS SHOWING QUANTITY, ANALYSIS AND NAME OF MANUFACTURER.
2. STORAGE: PROTECT SEED FROM WEATHER OR OTHER CONDITIONS, WHICH WOULD DAMAGE OR IMPAIR THE EFFECTIVENESS OF THE PRODUCT.

B. MULCH:

1. LABELING: EACH PACKAGE OF STRAW SHALL BE MARKED BY THE MANUFACTURER TO SHOW THE AIR-DRY WEIGHT CONTENT.
2. STORAGE: PROTECT FROM WEATHER OR OTHER CONDITIONS, WHICH WOULD DAMAGE OR IMPAIR THE EFFECTIVENESS OF THE PRODUCT.

1.03 JOB CONDITIONS AND STANDARDS:

- A. ALL PLANTING WORK SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF A SUPERINTENDENT AND LABORERS THOROUGHLY EXPERIENCED WITH THE WORK OF THIS SECTION AND WHO SHALL BE AT THE PROJECT SITE FOR THE DURATION OF THE WORK OF THIS SECTION.
- B. NO PLANTING WORK SHALL TAKE PLACE DURING INCLEMENT WEATHER OR WHEN THE GROUND CONDITIONS ARE, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, NOT IN A CONDITION TO BE PROPERLY WORKED.
- C. NO PLANTING WORK SHALL COMMENCE UNTIL THE ADJACENT SITE AND UTILITY IMPROVEMENTS, DRAINAGE IMPROVEMENTS, PAVEMENTS, AND FINISH GRADING IS COMPLETED, UNLESS AUTHORIZED BY OWNER'S REPRESENTATIVE.
- D. ERECT BARRICADES, FENCING, HIRE TEMPORARY WATCHMEN OR WHATEVER IS DEEMED NECESSARY BY THE CONTRACTOR TO TOTALLY PROTECT HIS WORK.

1.04 TIMING OF INSTALLATION:

A. NO-TILL DRILL SEEDING:

1. IRRIGATED AREAS: WITHIN FOURTEEN (14) CALENDAR DAYS AFTER THE COMPLETION AND ACCEPTANCE OF FINISH GRADING IN ANY AREA.
2. THERE SHALL BE NO SEEDING BETWEEN SEPTEMBER 20 AND APRIL 15.

1.05 WARRANTY:

- A. TIME PERIOD: WARRANT THAT THE LAWNS OR SEEDED AREAS SHALL BE IN A HEALTHY AND FLOURISHING CONDITION OF ACTIVE GROWTH TWELVE (12) MONTHS FROM DATE OF FINAL ACCEPTANCE OF THE SEEDING OF THE LAWN AREA OR IN ACCORDANCE WITH CDOT STANDARD SPECIFICATIONS, WHICH EVER IS GREATER.
- B. APPEARANCE DURING WARRANTY: LAWNS AND ALL SEEDED AREAS SHALL BE FREE OF DEAD OR DYING PATCHES (NO LARGER THAN A 12 INCH SQUARE), AND ALL AREAS SHALL SHOW FOLIAGE OF A NORMAL DENSITY, SIZE AND COLOR.
- C. DELAYS: DELAYS CAUSED BY CONTRACTOR IN COMPLETING PLANTING OPERATIONS, WHICH EXTEND THE PLANTING INTO MORE THAN ONE PLANTING SEASON, SHALL EXTEND THE WARRANTY PERIOD CORRESPONDINGLY.
- D. COVERAGE: WARRANT GROWTH AND COVERAGE OF SEEDED PLANTING TO THE EFFECT THAT A MINIMUM OF 95% OF THE AREA PLANTED SHALL BE COVERED WITH SPECIFIED PLANTING AFTER ON GROWING SEASON WITH NO BARE SPOTS.
- E. EXCEPTIONS: CONTRACTOR SHALL NOT BE HELD RESPONSIBLE FOR FAILURES DUE TO NEGLIGENCE BY THE OWNER, VANDALISM, OR ACTS OF GOD DURING WARRANTY PERIOD. REPORT SUCH CONDITIONS IN WRITING, IF NOT RECEIVED IN WRITING, THAN THE CONTRACTOR IS HELD RESPONSIBLE.

PART 2 - PRODUCTS

2.01 GRASS SEED MIX:

- A. SEED MIX: PROVIDE FRESH, CLEAN, NEW-CROP SEED COMPLYING WITH THE TOLERANCE FOR PURITY AND GERMINATION ESTABLISHED BY THE OFFICIAL SEED ANALYSIS OF NORTH AMERICA. PROVIDE SEED OF THE GRASS SPECIES, PROPORTIONS AND MINIMUM PERCENTAGES OF PURITY, GERMINATION, AND MAXIMUM PERCENTAGE OF WEED SEED, AS SPECIFIED BY THE FOLLOWING SCHEDULE (EACH MIXTURE APPLIED SEPARATELY).
- B. GRASS SEED MIX AND APPLICATION RATE - SEE DRAWING.
- C. ALL SEED SHALL BE FURNISHED IN BAGS OR CONTAINERS CLEARLY LABELED TO SHOW THE NAME AND ADDRESS OF THE SUPPLIER, THE SEED NAME, THE LOT NUMBER, NET WEIGHT, ORIGIN, THE PERCENT OF WEED SEED CONTENT, THE GUARANTEED PERCENTAGE OF PURITY AND GERMINATION, POUNDS OF PURE LIVE SEED (PLS) OF EACH SEED SPECIES, AND THE TOTAL POUNDS OF PLS IN THE CONTAINER. ALL BRANDS SHALL BE FREE FROM NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, EUROPE AND BIND WEED, JOHNSON GRASS, AND LEAFY SPURGE. THE CONTRACTOR SHALL FURNISH TO THE OWNER'S REPRESENTATIVE A SIGNED STATEMENT CERTIFYING THAT THE SEED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY FOR SEED TESTING WITHIN SIX MONTHS PRIOR TO THE DATE OF DELIVERY. SEED, WHICH HAS BECOME WET, MOLDY, OR DAMAGED IN TRANSIT OR IN STORAGE, WILL NOT BE ACCEPTABLE. SEED TYPES AND AMOUNT OF PLS REQUIRED PER ACRE SHALL BE PROVIDED IN ACCORDANCE WITH THE CONTRACT. SEED AND SEED LABELS SHALL CONFORM TO ALL CURRENT STATE AND FEDERAL REGULATIONS AND WILL BE SUBJECT TO THE TESTING PROVISIONS OF THE ASSOCIATION OF OFFICIAL SEED ANALYSIS. COMPUTATIONS FOR QUANTITY OF SEED REQUIRED ON THE PROJECT INCLUDE THE PERCENT OF PURITY AND PERCENT OF GERMINATION. IF SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE CONTRACTOR MUST COMPENSATE FOR A LESSER EQUAL THE SPECIFIED PROJECT. PRODUCE COMPARISON SHALL BE MADE ON THE BASIS OF PLS IN POUNDS, STATED ONE EACH SEED BAG. THE FORMULA USED FOR DETERMINING THE QUALITY OF PLS SHALL BE: "POUNDS OF SEED X (PURITY X GERMINATION) = POUNDS OF PLS".

2.02 ACCESSORIES:

- A. WATER: POTABLE WATER AS FURNISHED BY OWNER. TRANSPORT AS REQUIRED.

B. STRAW MULCHING:

1. STRAW OR HAY, FREE OF NOXIOUS WEEDS, CONTAINING NOT MORE THAN 5% SEED BY WEIGHT.
2. STRAW SHALL BE IN NATURAL, FIELD-CUT LENGTHS, NOT CHOPPED OR IN LENGTHS LESS THAN 12", TYPICALLY.
3. STRAW SHALL NOT BE MUSTY, MOLDY, DECAYED, CAKED OR OTHERWISE LOW QUALITY.

C. HYDRO MULCHING

1. SOIL TACKIFIER OR BLANKET SHALL BE USED ON ALL SLOPES GREATER THAN 4:1.

2.03 SOIL STABILIZER:

- A. COMPOSITION: TOTALLY ORGANIC SUBSTANCE, SUPPLIED IN POWDER FORM AND AT LEAST 90% OF WHICH IS 92% PURE MUCILOID DERIVED FROM GROUND PLANTAGO OVATA-INSULARIS HUSKS. STABILIZER SHALL BE WATER-SOLUBLE, NON-TOXIC HYDROPHILIC AND SHALL NOT INHIBIT GERMINATION.
- B. PRE-PLANT FERTILIZER: 18-46-0 OR APPROVED EQUAL.
- C. TOP-DRESS FERTILIZER: COMPLETE FERTILIZER, 50% OF THE NITROGEN TO BE DERIVED FROM NATURAL ORGANIC SOURCES OR UREA-FORM. AVAILABLE PHOSPHORIC ACID SHALL BE FROM SUPERPHOSPHATE, BONE OR TANKAGE. POTASH SHALL BE DERIVED FROM MURIATE OF POTASH CONTAINING 60% POTASH:

PART 3 - EXECUTION

3.01 EXAMINATION:

A. VERIFICATION OF CONDITIONS:

1. GRADES: VERIFY THAT ALL GRADES ARE WITHIN 1 INCH PLUS OR MINUS OF THE REQUIRED FINISHED GRADES. VERIFY THAT FERTILIZATION AND EROSION CONTROL MATERIALS HAVE BEEN INSTALLED IN OTHER SECTIONS. REPORT AL VARIATIONS IN WRITING.
2. STONES, WEEDS, AND DEBRIS: VERIFY THAT ALL AREAS TO RECEIVED LAWNS OR GRASSES ARE CLEAR OF STONES LARGER THAN 1 TO 1½ INCH DIAMETER, WEEDS, DEBRIS AND OTHER EXTRANEIOUS MATERIALS.
3. SOILS: VERIFY THAT SOILS HAVE BEEN PREPARED PER THE SPECIFICATIONS.

3.02 PREPARATION:

- A. EXCESSIVE SOIL MOISTURE: DO NOT COMMENCE WORK OF THIS SECTION WHEN SOIL MOISTURE CONTENT IS SO GREAT THAT EXCESSIVE COMPACTION WILL OCCUR.
- B. INADEQUATE SOIL MOISTURE: APPLY WATER, AS NECESSARY, TO BRING SOIL TO OPTIMUM MOISTURE CONTENT FOR PLANTING. DO NOT WORK SOIL WHEN IT IS SO DRY THAT DUST WILL FORM IN THE AIR OR THAT CLODS WILL NOT BREAK READILY.
- C. AFTER SITE PREPARATION IS COMPLETED, CONTRACTOR SHALL RECEIVE APPROVAL FROM OWNER PRIOR TO SEEDING.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

SEEDING SPECIFICATIONS

# SEEDING AND ROCK MULCH

3.03 MULCHING:

A. APPLICATION:

1. ALL AREAS TO BE SEEDED SHALL BE MULCHED.
2. MULCH SHOULD BE APPLIED IMMEDIATELY PRIOR TO SEEDING. THE PERIOD BETWEEN MULCHING AND SEEDING SHALL NOT EXCEED 2 WEEKS.
3. RATE OF MULCHING SHALL BE 1.5 TONS PER ACRE.
4. MULCH SHALL BE UNIFORMLY APPLIED OVER THE DESIGNATED AREA.
5. MULCH SHALL BE ANCHORED IN PLACE IMMEDIATELY FOLLOWING APPLICATION (SAME DAY AS APPLIED).
6. A MULCH CRIMPER, WITH FLAT SERRATED DISK SHALL BE USED TO ANCHOR THE MULCH INTO THE SOIL. THE DISK SHALL BE NOT LESS THAN ¼ INCH IN THICKNESS, SHALL HAVE DULL EDGES, AND SHALL BE SPACED NOT MORE THAN NINE INCHES APART. THE DISK SHALL BE OF SUFFICIENT DIAMETER TO PREVENT THE FRAME OF THE EQUIPMENT FROM DRAGGING THE MULCH OVER THE MULCH AREA WITH ANCHORING EQUIPMENT. THE DEPTH OF CUT SHALL BE 3 TO 4 INCHES. CARE MUST BE EXERCISED SO THAT A MINIMUM AMOUNT OF SOIL WILL BE DISTURBED.

3.04 FIELD QUALITY CONTROL:

- A. TESTS: SAMPLES OF MATERIALS MAY BE TAKEN AND TESTED FOR CONFORMITY TO SPECIFICATIONS AT ANY TIME.
- B. REJECTED MATERIALS: REMOVE REJECTED MATERIALS IMMEDIATELY FROM THE SITE AT CONTRACTOR'S EXPENSE. CONTRACTOR SHALL PAY COST OF TESTING OF MATERIALS NOT MEETING SPECIFICATIONS.

3.05 ACCEPTANCE:

- A. CONTRACTOR SHALL RESEED AREAS THAT ARE THIN OR WEAK AFTER 14 DAY OF THE INITIAL SEEDING. CONTRACTOR SHALL RESEED (AND KEEP RESEEDING) UNTIL THERE ARE NO BARE, THIN OR WEAK SPOT GREATER THAN A 12 SQUARE FOOT AREA.
- B. MAINTENANCE - CONTRACTOR SHALL MAINTAIN THE TURF AREA (I.E. MOWING, WATERING AND RESEEDING) UNTIL THE OWNER HAS ACCEPTED THE LAWN. THE MAINTENANCE PERIOD INCLUDES THE TIME PERIOD FROM INITIAL SEEDING TO FINAL ACCEPTANCE OF THE TURF AREA, WHICH MAYBE A DIFFERENT DATE THAN THE ACCEPTANCE OF THE OTHER FACILITIES IN THE PROJECT. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH A STAND OF GRASS THAT HAS NO BARE, WEAK OR THIN SPOTS GREATER THAN 12 SQUARE INCH AREA AND MAINTAIN THE LAWN UNTIL THE STAND OF GRASS HAS BEEN ACHIEVED. FROM THAT DATE A ONE - YEAR WARRANTY WILL BEGIN ON THE LAWN AREA.
- C. CONTRACTOR SHALL OBTAIN APPROVAL FROM THE CITY OF PUEBLO ON ALL SEED MIXES, PRODUCTS, AND SEEDING AND STABILIZATION METHODS PRIOR TO MATERIAL PURCHASE OR INSTALLATION.

END OF SECTION 02930

SECTION 02927 - ROCK MULCH

PART 1 - GENERAL

ROCK MULCH WORK SHALL CONSIST OF FURNISHING AND PLACING ROCK MULCH, INCLUDING SITE PREPARATION, EDGING AND WEED CONTROL FABRIC AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER.

PART 2 - MATERIALS:

2.01 ROCK MULCH

ROCK MULCH SHALL CONSIST OF CRUSHED ROCK AND SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:

ROCK MULCH SHALL BE 1 1/2" CRUSHED ROCK. ROCK SHALL BE PROVIDED IN TWO DIFFERENT COLORS: ORANGE AND RED HUES AND GRAY HUES AS SHOWN IN THE PLANS. THE CONTRACTOR SHALL SUBMIT A ONE (1) QUART BAG SAMPLE OF EACH TYPE AND COLOR OF CRUSHED ROCK TO THE ENGINEER FOR APPROVAL PRIOR TO DELIVERY OF MATERIALS TO THE SITE.

2.02 WEED CONTROL FABRIC

WEED CONTROL FABRIC SHALL BE MANUFACTURED FROM THERMALLY SPUN BONDED NON-WOVEN POLYPROPYLENE FABRIC AND SHALL CONFORM TO THE FOLLOWING:

SPECIFICATION	MINIMUM REQUIREMENT
THICKNESS	0.019" THICK
UV RESISTANCE	70% AT 150 HOURS

NO IMPERVIOUS, PLASTIC FABRIC SHALL BE ACCEPTED.

STAPLES SHALL BE 50-MMWIDE, 200-MM IN LENGTH, AND 11 GAUGE WIRE.

A COPY OF THE MANUFACTURERS PRODUCT SHEET TOGETHER WITH INSTRUCTIONS FOR INSTALLATION SHALL BE FURNISHED TO THE ENGINEER FIVE (5) DAYS BEFORE INSTALLATION.

A CERTIFICATED OF COMPLIANCE FOR THE WEED CONTROL FABRIC SHALL BE FURNISHED TO THE ENGINEER PRIOR TO INSTALLATION.

2.03 EDGING

EDGING SHALL BE CONSTRUCTED IN CONFORMANCE WITH A TYPICAL 6 INCH CDOT CURB TYPE 2 (SECTION B).

PART 3 - EXECUTION

3.01 CLEARING

AREAS TO RECEIVE ROCK MULCH SHALL BE CLEARED OF TRASH AND DEBRIS. VEGETATION SHALL BE REMOVED TO THE GROUND. CLEARED TRASH, DEBRIS AND VEGETATION SHALL BE DISPOSED OF OUTSIDE THE PROJECT LIMITS AND WITHIN ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.

3.02 EARTHWORK

AFTER CLEARING, THE AREAS TO RECEIVE ROCK MULCH SHALL BE GRADED TO A SMOOTH SURFACE, COMPACTED TO NOT LESS THAT 90% RELATIVE COMPACTION.

PRIOR TO PLACEMENT OF ROCK MULCH, THE SOIL SURFACE SHALL BE SMOOTH, FIRM, STABLE AND FREE OF ROCKS, CLOUDS, FOLIAGE, ROOTS OR OTHER MATERIAL GREATER THAN TWO (2) INCHES IN DIAMETER

3.03 SOIL TREATMENT

FOLLOWING GRADING OPERATIONS, THE SUB-BASE FOR ROCK MULCH SHALL BE TREATED WITH A PRE-EMERGENT HERBICIDE. APPLY HERBICIDE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. TWO APPLICATIONS OF HERBICIDE WILL BE REQUIRED WITH A 7 DAY PERIOD IN BETWEEN APPLICATIONS.

3.04 WEED CONTROL FABRIC PLACEMENT

WEED CONTROL FABRIC SHALL BE PLACED IN AREAS TO RECEIVE ROCK MULCH. WEED CONTROL FABRIC SHALL BE PLACED LOOSELY WITH LONGITUDINAL AND TRANSVERSE JOINTS OVERLAPPED A MINIMUM OF FOUR (4) INCHES. FOLLOWING PLACEMENT, THE FABRIC SHALL LIE FLAT, SMOOTH AND BE IN UNIFORM CONTACT WITH THE SOIL SURFACE WITHOUT BULGES OR WRINKLES. FABRIC SHALL BE STAPLED OR STAKED IN PLACE TO KEEP FABRIC IN PLACE DURING ROCK PLACEMENT AND COMPACTION.

EDGING SHALL BE INSTALLED AS PER THE DETAIL ON THE DRAWINGS AND IN ACCORDANCE WITH STANDARD CDOT PRACTICES.

ROCK MULCH SHALL BE PLACED TO A DEPTH OF FOUR (4) INCHES. ROCK MUCH COLOR SHALL BE PLACED AS INDICATED ON THE PLANS. ALL ROCK MULCH SHALL BE RAKED TO FORM A SMOOTH, UNIFORM SURFACE. THE FINAL SURFACE SHALL BE UNIFORM MAINTAIN ORIGINAL FLOW LINES, SLOPE GRADIENT AND CONTOURS OF THE PROJECT SITE.

END OF SECTION 02927

SECTION 02926 - SODDING

PART 1 - GENERAL

1.01 DESCRIPTION:

- A. WORK INCLUDED: FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE COMPLETION OF SODDING INDICATED ON THE LANDSCAPE DRAWINGS.
- B. RELATED WORK SPECIFIED ELSEWHERE:
  - 1. SECTION 02200 FINISH GRADE AND SITE PREPARATION
  - 2. SECTION 02815 IRRIGATION SYSTEM
  - 3. SECTION 02900 PLANTING
  - 4. SECTION 02923 TOPSOIL

1.02 SOURCE AND QUALITY CONTROL

- A. OBTAIN LANDSCAPE ARCHITECT'S APPROVAL OF SOD AT SOURCE.
- B. SOD SHALL BE AS SPECIFIED ON PLANS.
- C. PROVIDE HEALTHY, FIELD GROWN SOD, FREE FROM OTHER GRASSES, WEEDS, INSECTS AND THEIR EGGS, DISEASES, STONES AND DEBRIS, AND A MINIMUM OF TWO YEARS OLD. FURNISH FROM SOD FARM WHERE IT HAS RECEIVED REGULAR WATERING, MOWING, FERTILIZING, WEED CONTROL, AND SPRAYING.
- D. MOW SOD TO 1 ½" TO 2" HEIGHT PRIOR TO CUTTING AND CUT TO A UNIFORM THICKNESS OF ¾" TO 1". DELIVER IN ROLLS 6' LONG AND 18" WIDE SMALL IRREGULAR OR BROKEN PIECES OF SOD WILL NOT BE ACCEPTED. DO NOT CUT MORE SOD THAN CAN BE PUT AT THE SITE THE SAME DAY.

1.03 SAMPLES

- A. SUBMIT ONE (1) FOOT LONG SAMPLE SOD TO LANDSCAPE ARCHITECT FOR APPROVAL.

1.04 DELIVERY, STORAGE, & HANDLING:

- A. CUT AND LIFT SOD BY APPROVED METHODS. CUT SOD IN PIECES APPROXIMATELY ¾ TO ONE INCH THICK AND A MINIMUM 30" WIDTH. ROLL OR FOLD SOD SO IT MAY BE LIFTED AND HANDLED WITHOUT BREAKING OR TEARING AND WITHOUT LOSS OF SOIL.
- B. SCHEDULE DELIVERIES TO COINCIDE WITH SOIL PREPARATION AND FINISH GRADING. KEEP STORAGE AT JOB SITE TO MINIMUM WITHOUT CAUSING DELAYS.
  - 1. DELIVER, UNLOAD AND STORE SOD ON PALLETS WITHIN 24 HOURS OF BEING LIFTED.
  - 2. DO NOT DELIVER SMALL, IRREGULAR OR BROKEN PIECES OF SOD.
- C. STORAGE
  - 1. DURING WET WEATHER:
    - A. ALLOW SOD TO DRY SUFFICIENTLY TO PREVENT TEARING DURING LIFTING AND HANDLING.
  - 2. DURING DRY WEATHER:
    - A. PROTECT SOD FROM DRYING, WATER AS NECESSARY TO INSURE ITS VITALITY AND PREVENT EXCESS LOSS OF SOIL IN HANDLING. SOD, WHICH DRIES OUT, WILL BE REJECTED.

1.05 TIMING OF INSTALLATION:

- A. PLACEMENT OF SOD:
  - 1. IRRIGATED & NON-IRRIGATED AREAS: WITHIN FOURTEEN (7) CALENDAR DAYS AFTER THE COMPLETION AND ACCEPTANCE OF FINISH GRADING IN ANY AREA.
  - 2. THERE SHALL BE NO INSTALLATION OF SOD BETWEEN OCTOBER 1 AND APRIL 1.

PART 2 - PRODUCTS

2.01 CERTIFIED SOD:

- A. SUPERIOR SOD GROWN FROM CERTIFIED, HIGH QUALITY, SEED OF KNOWN ORIGIN OR FROM PLANTINGS OF CERTIFIED GRASS SEEDS OR STOLONS.
- B. SOD SHALL BE TRUE TO TYPE, QUALITY CULTURED TURF GRASS GROWN FROM SEED APPROVED BY THE US DEPARTMENT OF AGRICULTURE, FREE OF DISEASES, CLOVER, STONES, PESTS AND DEBRIS, AND CONTAINING MAXIMUM OF 2% OF OTHER GRASS SPECIES THAN VARIETY SPECIFIED; NO MORE THAN TWO (2) BROADLEAF WEEDS OR TEN (10) ANNUAL WEEDS OF WEEDY GRASSES PER 50 SQUARE YARDS. THICKNESS OF SOD SOIL PORTION 1" MAXIMUM.
- C. INSPECT SOD TO:
  - 1. ASSURE SATISFACTORY GENETIC IDENTITY AND PURITY.
  - 2. ASSURE OVER-ALL HIGH QUALITY AND FREEDOM FROM NOXIOUS WEEDS OR AN EXCESSIVE AMOUNT OF OTHER CROP AND WEEDY PLANTS AT TIME OF HARVEST.
- D. SOD SHALL BE COMPOSED OF THE FOLLOWING APPROVED SEED MIXTURES FOR THIS PROJECT:

2.02 SOD BLEND

- A. SOD BLEND SPECIFIED ON THE PLANS SHALL BE USED.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. FINAL GRADE SHALL BE PREPARED WITH 3 CY PER 1,000 S.F. OF ORGANIC SOIL AMENDMENT AND TILLED TO A DEPTH OF 12" PRIOR TO LAYING SOD. SEE PLANTING SECTION 02900, 2.06 SOIL PREPARATION.
- B. LAY SOD DURING GROWING SEASON. SODDING DURING DRY SUMMER PERIOD, AT FREEZING TEMPERATURES, OR OVER FROZEN SOIL IS NOT ACCEPTABLE.
- C. LAY SOD WITHIN 36 HOURS OF BEING LIFTED.
- D. LAY SOD IN ROWS WITH JOINTS STAGGERED. BUTT SECTIONS CLOSELY WITHOUT OVERLAPPING OR LEAVING GAPS BETWEEN SECTIONS. CUT OUT IRREGULAR OR THIN SECTIONS WITH A SHARP KNIFE.
- E. LAY SOD FLUSH WITH ADJOINING EXISTING SODDED SURFACES. TOP OF SOD DIRT SHALL BE 2 INCHES BELOW TOP OF CONCRETE WALKS OR CURBS.
- F. AFTER SODDING HAS BEEN COMPLETED, ROLL HORIZONTAL SURFACE AREAS IN TWO DIRECTIONS PERPENDICULAR TO EACH OTHER.
- G. REPAIR AND RE-ROLL AREAS WITH DEPRESSIONS, LUMPS, OR OTHER IRREGULARITIES.
- H. HEAVY ROLLING TO CORRECT IRREGULARITIES IN GRADE WILL NOT BE PERMITTED.
- I. WATER SODDED AREAS IMMEDIATELY AFTER LAYING SOD TO OBTAIN MOISTURE PENETRATION THROUGH SOD INTO TOP 4 INCHES OF TOPSOIL.
- J. REPLACE DAMAGED AREAS AT NO ADDITIONAL COST TO OWNER.

3.02 FIELD QUALITY CONTROL:

- A. FINAL ACCEPTANCE:
  - 1. SODDED AREAS WILL BE ACCEPTED AT FINAL INSPECTION IF:
    - A. SODDED AREAS ARE PROPERLY ROLLED AND TURF IS ESTABLISHED (INCLUDING THAT THE ROOTS HAVE BEGUN TO DEVELOP).
    - B. SOD IS FREE OF BARE AND DEAD SPOTS AND WITHOUT WEEDS.
    - C. NO SURFACE SOIL IS VISIBLE WHEN GRASS HAS BEEN CUT TO HEIGHT OF 2 INCHES.
    - D. SODDED AREAS HAVE BEEN MOWED A MINIMUM OF TWO TIMES.

3.03 CLEANING:

- A. IMMEDIATELY CLEAN UP ANY SOIL OR DEBRIS SPILLED ONTO PAVEMENT AND DISPOSE OF ALL DELETERIOUS MATERIALS.

3.04 PROTECTION:

- A. PROTECT SODDED AREAS AGAINST TRAFFIC OR OTHER USE IMMEDIATELY AFTER SODDING IS COMPLETED BY PLACING ADEQUATE WARNING SIGNS AND BARRICADES.
- B. PROVIDE ADEQUATE PROTECTION OF SODDED AREAS AGAINST TRESPASSING, EROSION, AND DAMAGE OF ANY KIND. REMOVE THIS PROTECTION AFTER OWNER HAS ACCEPTED SODDED AREAS.

3.05 MAINTENANCE:

- A. CONTRACTOR SHALL MAINTAIN SOD AREA (INCLUDING MOWING, WATERING, REMOVING WEEDS AND RESODDING) UNTIL THE OWNER HAS ACCEPTED SOD AREAS.
- B. THE CONTRACTOR SHALL MAINTAIN THE SOD AREA UNTIL THE OWNER HAS ACCEPTED THE PROJECT.
- C. THE MAINTENANCE INCLUDES:
  - 1. MANAGING THE IRRIGATION SCHEDULE AND REPAIRS TO THE IRRIGATION SYSTEM AS NECESSARY. MAINTAINING ACCEPTABLE COVERAGE ON ALL NEWLY SOD AREAS TO GUARANTEE GROWTH OF THE PLANT MATERIALS.
  - 2. MOWING, IF APPLICABLE TO CONTROL WEED GROWTH AND RECOMMENDED GROWING HEIGHT PER SUPPLIER. IF WEED POPULATION IS HIGH, THEN CLIPPINGS SHALL BE COLLECTED. FREQUENCY OF MOWING SHALL BE DONE PER SUPPLIER'S RECOMMENDATIONS TO GUARANTEE A HEALTHY AND FLOURISHING TURF CONDITION. IF MOWING IS NOT POSSIBLE, THAN CONTRACTOR MAY USE HERBICIDES AS NECESSARY ONCE THE VEGETATION IS AT A MATURE STAND AND CAN HANDLE THE CHEMICALS. IF HERBICIDE DOES DAMAGE THE VEGETATION STAND, THEN THE CONTRACTOR WILL BE RESPONSIBLE TO REESTABLISH THE VEGETATION STAND AT CONTRACTOR'S EXPENSE.
  - 3. TRIMMING SHALL BE DONE AROUND WHERE MOWERS ARE UNABLE TO REACH.
  - 4. CLIPPINGS SHALL BE REMOVED FROM ALL HARD SURFACES.
  - 5. PROVIDE SUITABLE SIGNAGE NOTIFYING THE PUBLIC TO KEEP OFF THE SEEDED AREAS, PROVIDE BARRICADES AS NEEDED.
  - 6. APPLY FERTILIZER AS NECESSARY, TYPICALLY APPLIED FOUR (4) TIMES PER YEAR.

3.06 ACCEPTANCE

- A. ALL GRASS AREAS WILL BE ACCEPTED BY LANDSCAPE ARCHITECT AT END OF MAINTENANCE PERIOD PROVIDED THAT SODDED AREAS ARE PROPERLY ESTABLISHED.
- B. AT TIME OF ACCEPTANCE, GRASSED AREAS ARE TO BE FREE OF ERODED, BARE OR DEAD SPOTS AND 98% FREE OF WEEDS.
- C. NO SURFACE SOIL IS VISIBLE WHEN GRASS HAS BEEN CUT TO HEIGHT OF 3.5".
- D. SODDED AREAS HAVE BEEN CUT AT LEAST FOUR TIMES, THE LAST CUT BEING CARRIED OUT WITHIN 24 HOURS OF ACCEPTANCE.

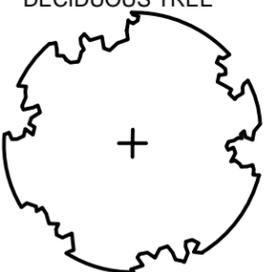
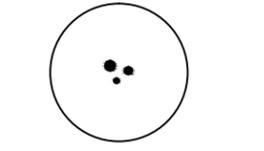
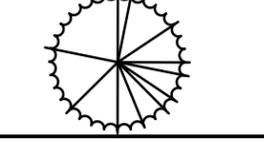
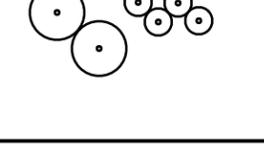
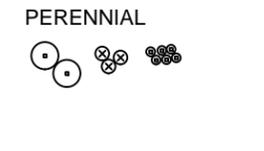
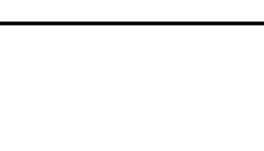
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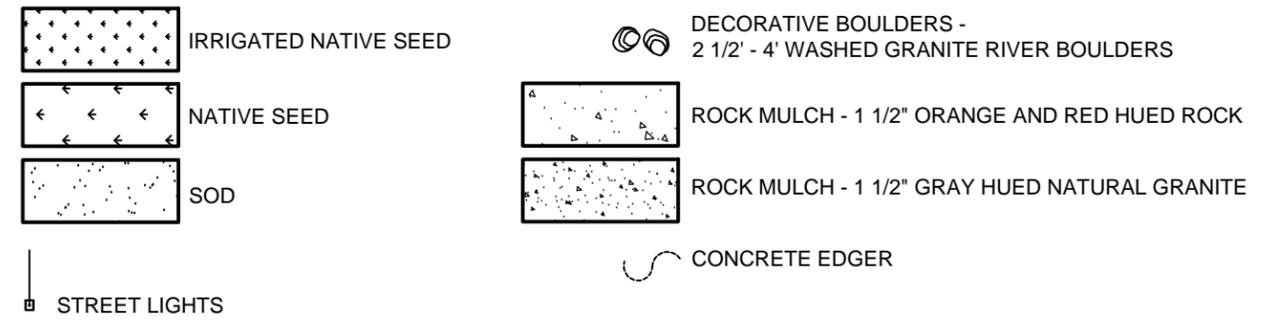
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

SODDING SPECIFICATIONS

# SEEDING AND ROCK MULCH

PLANT SCHEDULE

	SYMBOL	QTY	SCIENTIFIC NAME	COMMON NAME	SIZE	WATER REQ.
	DECIDUOUS TREE					
	HKB	3	<i>Celtis occidentalis</i>	WESTERN HACKBERRY	2.0" CAL.	XERIC
	HSL	11	<i>Gleditsia tricanthos</i> 'Shademaster'	SHADEMASTER HONEYLOCUST	2.0" CAL.	XERIC
	OKB	9	<i>Quercus macrocarpa</i>	BUR OAK	2.0" CAL.	LOW
	APA	12	<i>Fraxinus americana</i> 'Autumn Purple'	AUTUMN PURPLE ASH*	2.0" CAL.	LOW
	TKC	18	<i>Gymnocladus dioica</i> 'Expresso'	KENTUCKY COFFEE TREE	2.0" CAL.	LOW
TOTAL		53				
	ORNAMENTAL TREE					
	SAB	7	<i>Amelanchier x grandiflora</i> 'Autumn Brilliance'	AUTUMN BRILLIANCE SERVICEBERRY	2.0" CAL.	MED.
TOTAL		7				
	EVERGREEN TREE					
	PNN	15	<i>Pinus edulis</i>	PINYON PINE	6' TALL	XERIC
	PBC	19	<i>Pinus aristata</i>	BRISTLEcone PINE	6' TALL	XERIC
	PAS	4	<i>Pinus nigra</i>	AUSTRIAN PINE	6' TALL	XERIC
	TOTAL		38			
	DECIDUOUS SHRUB					
	IDB	22	<i>Amorpha fruticosa</i>	INDIGOBUSH	5 GAL.	XERIC
	PSS	6	<i>Caragana arborescens</i> nana	SIBERIAN PEASHRUB	5 GAL.	XERIC
	MOL	23	<i>Philadelphus microphyllus</i>	LITTLELEAF MOCKORANGE	5 GAL.	XERIC
	RRM	59	<i>Rosa Meidiland</i> Red	RED MEIDILAND ROSE	5 GAL.	MED.
	CBS	19	<i>Symphoricarpus albus</i>	SNOWBERRY CORALBERRY	5 GAL.	XERIC
	SSK	10	<i>Amelanchier alnifolia</i>	SASKATOON SERVICEBERRY	5 GAL.	XERIC
TOTAL		139				
	EVERGREEN SHRUB					
	APM	45	<i>Arctostaphylos x coloradoensis</i> 'Panchito'	PANCHITO MANZANITA	5 GAL.	XERIC
	JSR	25	<i>Juniperus scopulorum</i> 'Skyrocket'	SKYROCKET JUNIPER	10 GAL.	LOW
	JST	13	<i>Juniperus chinensis</i> 'Spartan'	SPARTAN JUNIPER	10 GAL.	LOW
	TOTAL		83			
	ORNAMENTAL GRASS					
	GBF	109	<i>Festuca glauca</i>	BLUE FESCUE GRASS	1 GAL.	XERIC
	GDH	91	<i>Pennisetum alopecuroides</i>	DWARF FOUNTAIN GRASS	1 GAL.	LOW
	GSS	101	<i>Bouteloa gracilis</i>	SHENANDOAH SWITCH GRASS	5 GAL.	LOW
	TOTAL		301			
	PERENNIAL					
	HSS	21	<i>Agastache cana</i> 'Sonoran Sunset'	SONORAN SUNSET HYSSOP	1 GAL.	XERIC
	ABG	86	<i>Aurinia saxatilis</i>	BASKET OF GOLD	1 GAL.	XERIC
	PEP	98	<i>Penstemon</i> 'Elfin Pink'	PINK PENSTEMON	1 GAL.	LOW
	SHD	15	<i>Leucanthemum x superbum</i>	SHASTA DAISY	1 GAL.	MED.
	LGF	109	<i>Liatris spicata</i>	GAY FEATHER	1 GAL.	MED.
	RDG	18	<i>Rudbeckia hirta</i> pulcherrina	BLACK EYED SUSAN	1 GAL.	MED.
	ADB	72	<i>Aster novi-belgii</i> 'Audrey'	DWARF BLUE FALL ASTER	1 GAL.	MED.
	TOTAL		419			



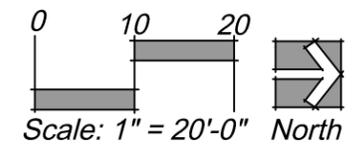
- NOTES:
- ALL SLOPES 3:1 OR GREATER SHALL RECEIVE SLOPE TREATMENT. TREATMENT INCLUDES ROCK MULCH, SLOPE BLANKET, OR EROSION CONTROL BLANKET.
  - ALL NATIVE SEEDING SHALL RECEIVE MULCH OR TACKIFIER.



ORANGE AND RED HUED ROCK



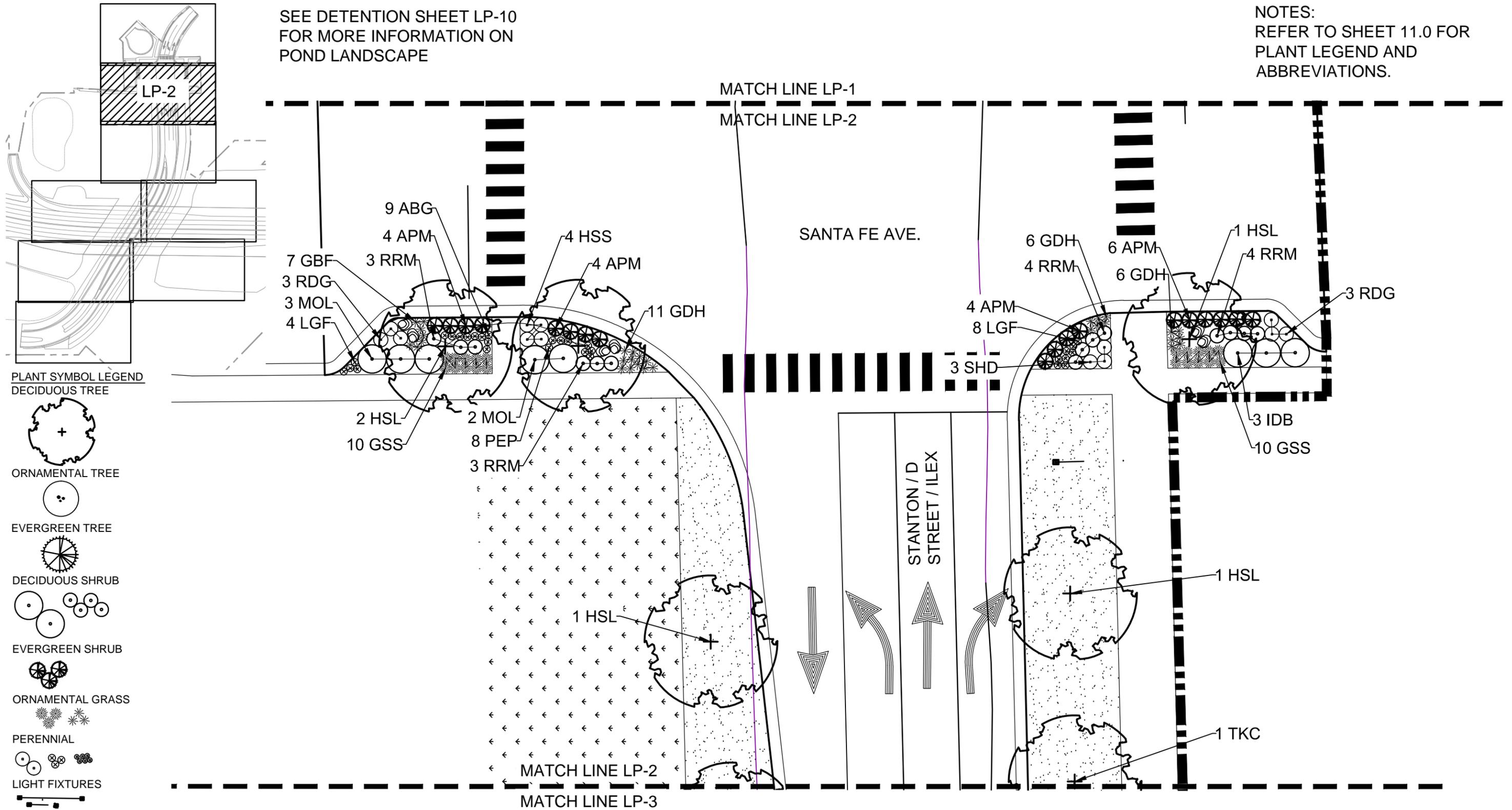
GRAY HUED ROCK






SEE DETENTION SHEET LP-10  
FOR MORE INFORMATION ON  
POND LANDSCAPE

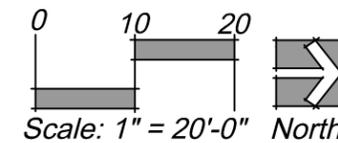
NOTES:  
REFER TO SHEET 11.0 FOR  
PLANT LEGEND AND  
ABBREVIATIONS.



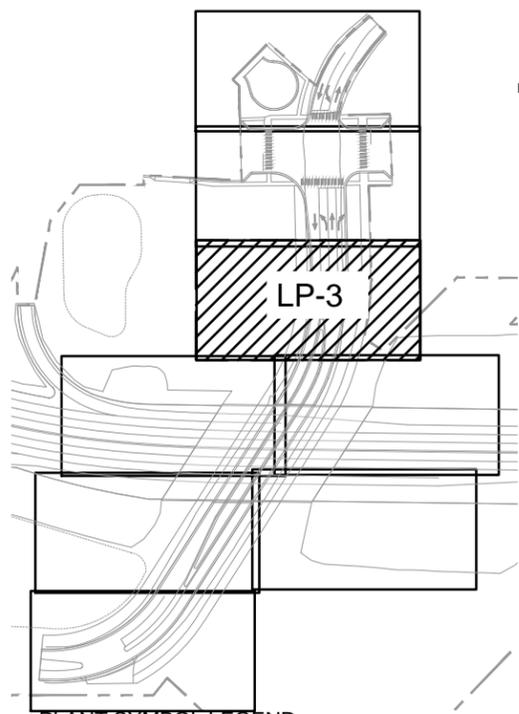
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

LANDSCAPE PLAN

# LANDSCAPE - LP-2

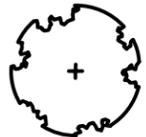


11.2



PLANT SYMBOL LEGEND

DECIDUOUS TREE



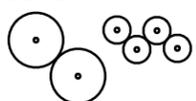
ORNAMENTAL TREE



EVERGREEN TREE



DECIDUOUS SHRUB



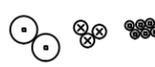
EVERGREEN SHRUB



ORNAMENTAL GRASS



PERENNIAL



LIGHT FIXTURES



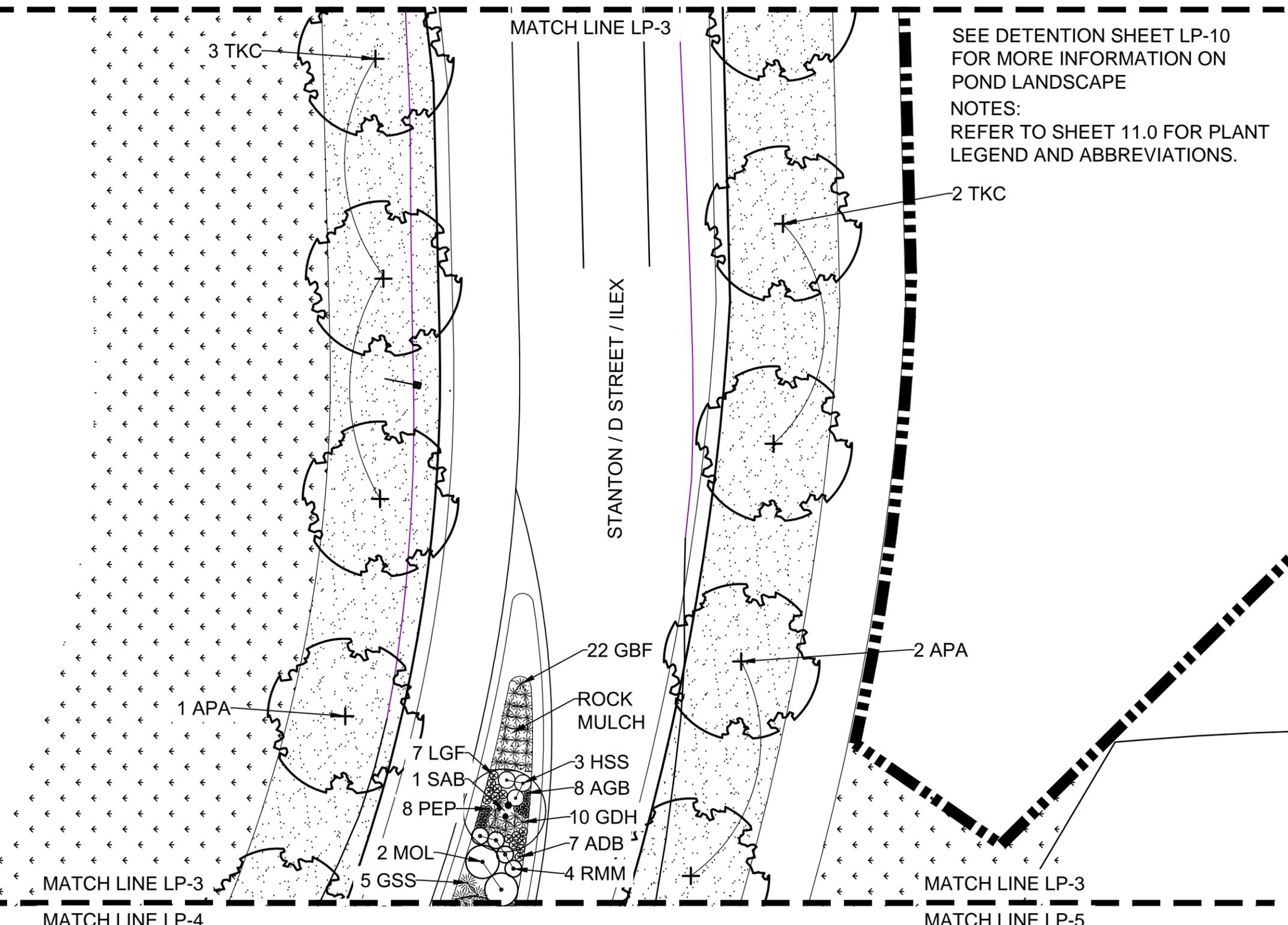
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

# LANDSCAPE - LP-3

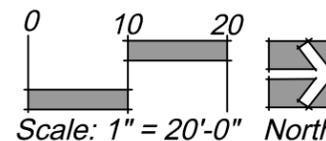
MATCH LINE LP-2

MATCH LINE LP-3

SEE DETENTION SHEET LP-10 FOR MORE INFORMATION ON POND LANDSCAPE  
 NOTES:  
 REFER TO SHEET 11.0 FOR PLANT LEGEND AND ABBREVIATIONS.

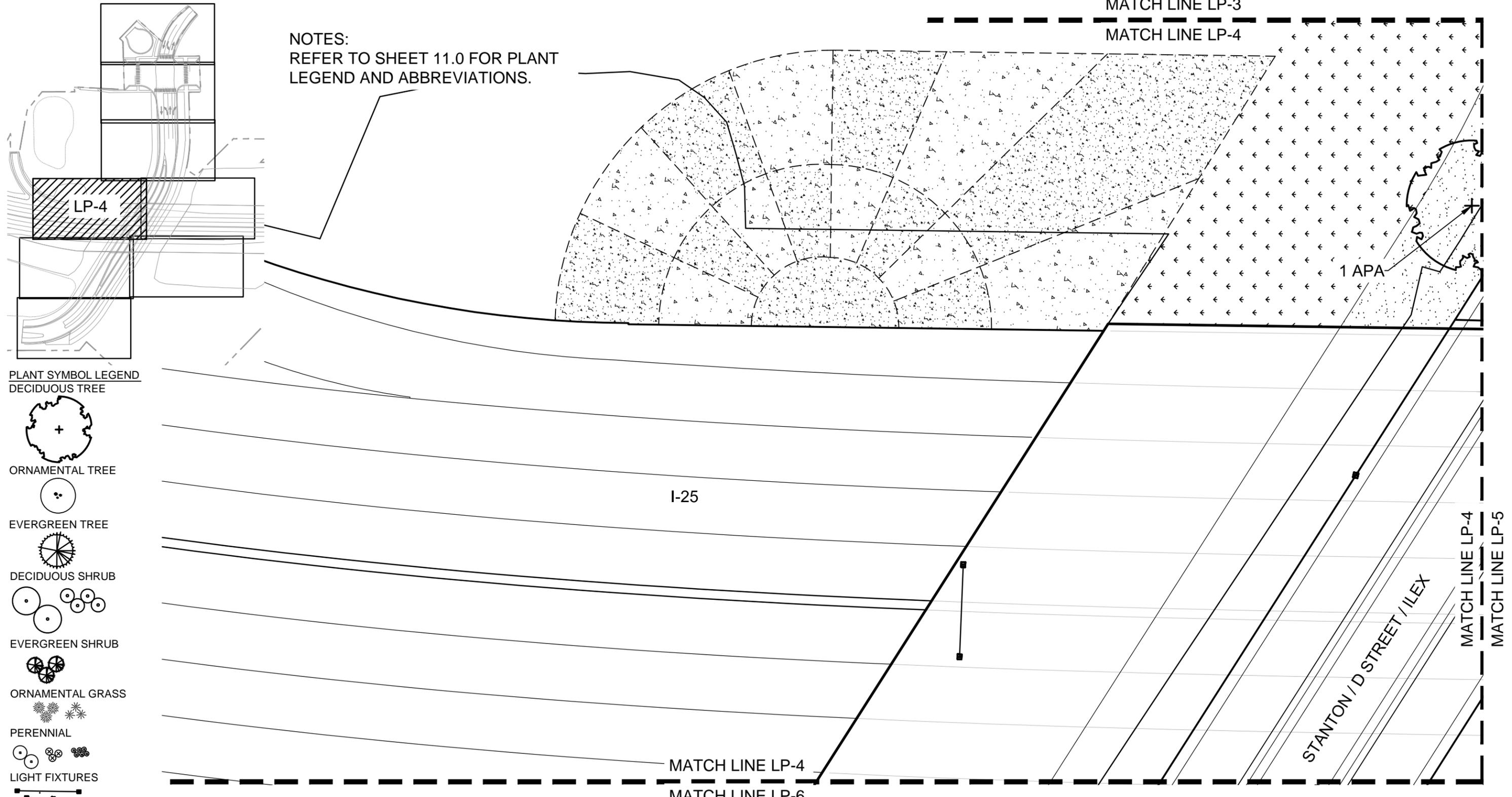


LANDSCAPE PLAN



11.3

NOTES:  
REFER TO SHEET 11.0 FOR PLANT  
LEGEND AND ABBREVIATIONS.



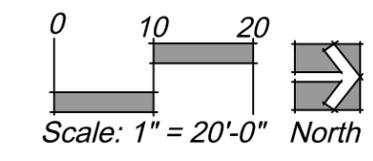
PLANT SYMBOL LEGEND

- DECIDUOUS TREE
- ORNAMENTAL TREE
- EVERGREEN TREE
- DECIDUOUS SHRUB
- EVERGREEN SHRUB
- ORNAMENTAL GRASS
- PERENNIAL
- LIGHT FIXTURES

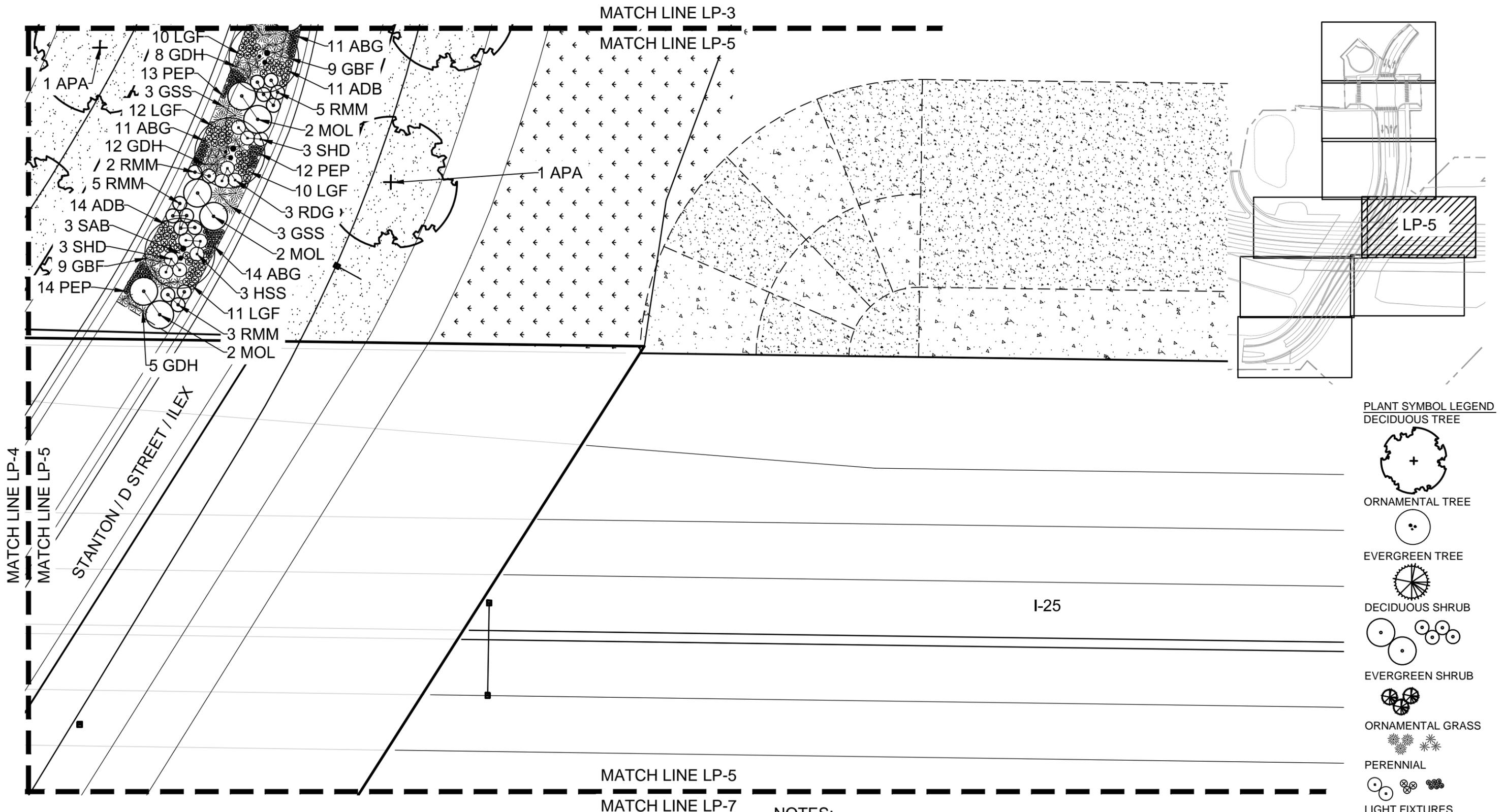
I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

LANDSCAPE PLAN

# LANDSCAPE - LP-4



# 11.4

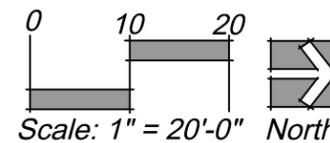


I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

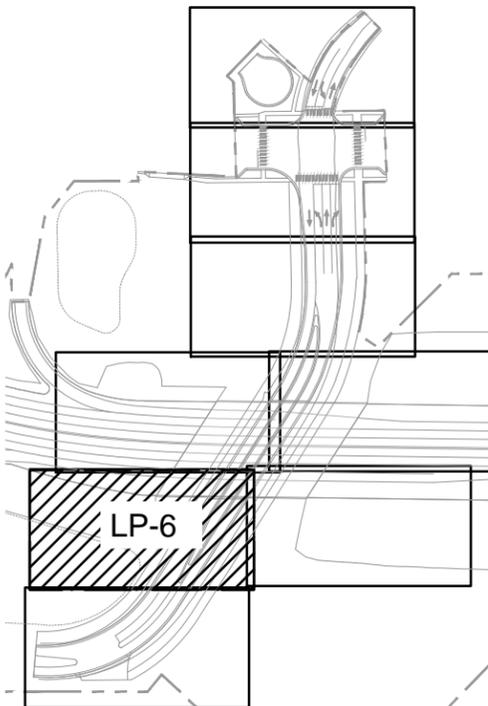
NOTES:  
REFER TO SHEET 11.0 FOR PLANT LEGEND AND ABBREVIATIONS.

LANDSCAPE PLAN

# LANDSCAPE - LP-5



11.5

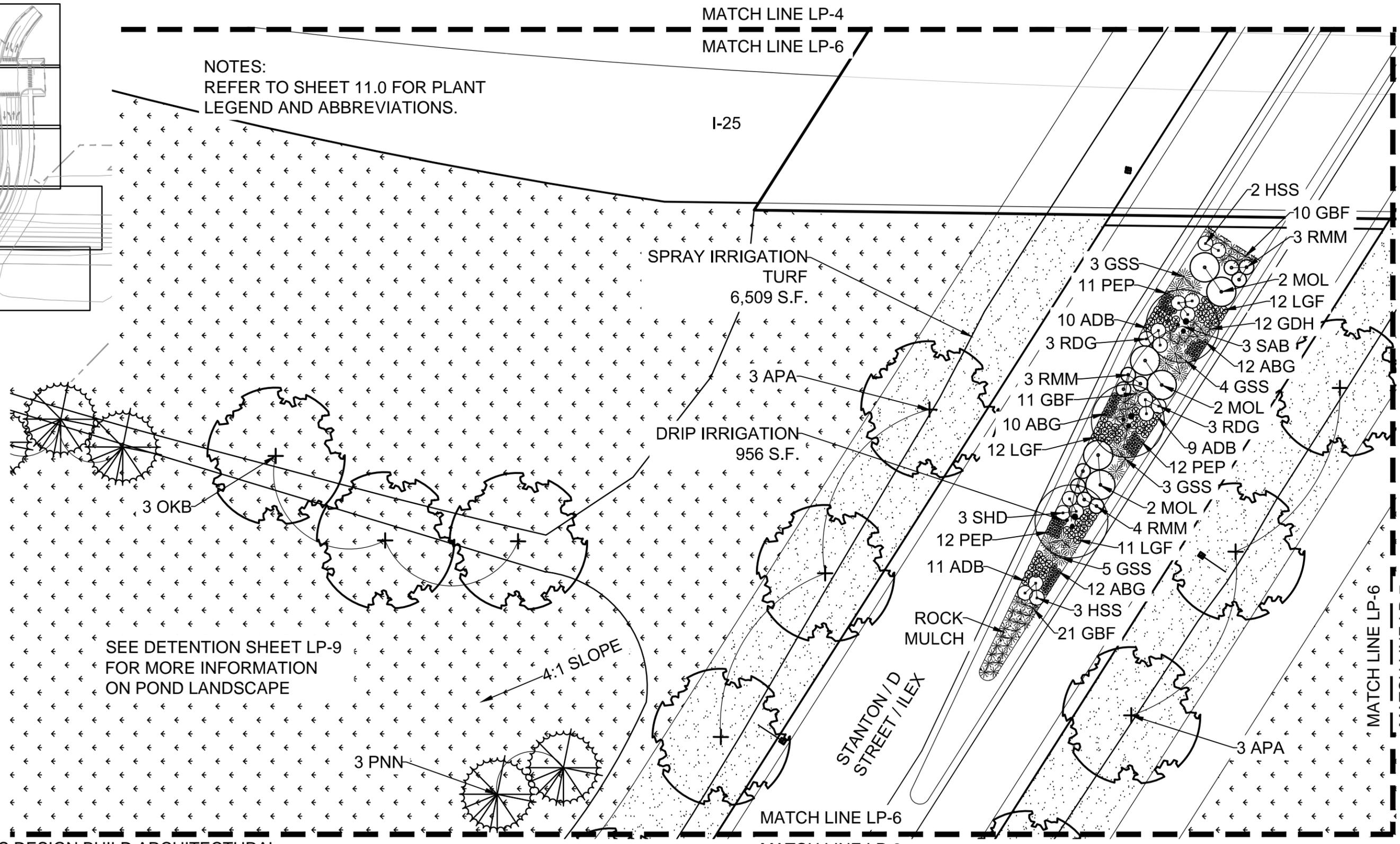


PLANT SYMBOL LEGEND  
DECIDUOUS TREE

- ORNAMENTAL TREE
- EVERGREEN TREE
- DECIDUOUS SHRUB
- EVERGREEN SHRUB
- ORNAMENTAL GRASS
- PERENNIAL
- LIGHT FIXTURES

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

NOTES:  
REFER TO SHEET 11.0 FOR PLANT  
LEGEND AND ABBREVIATIONS.



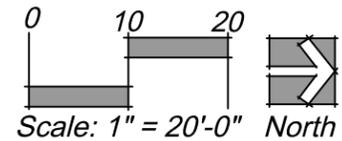
SEE DETENTION SHEET LP-9  
FOR MORE INFORMATION  
ON POND LANDSCAPE

4:1 SLOPE

STANTON/D  
STREET / ILEX

LANDSCAPE PLAN

# LANDSCAPE - LP-6



# 11.6

MATCH LINE LP-5

MATCH LINE LP-7

I-25

STANTON / D STREET / ILEX

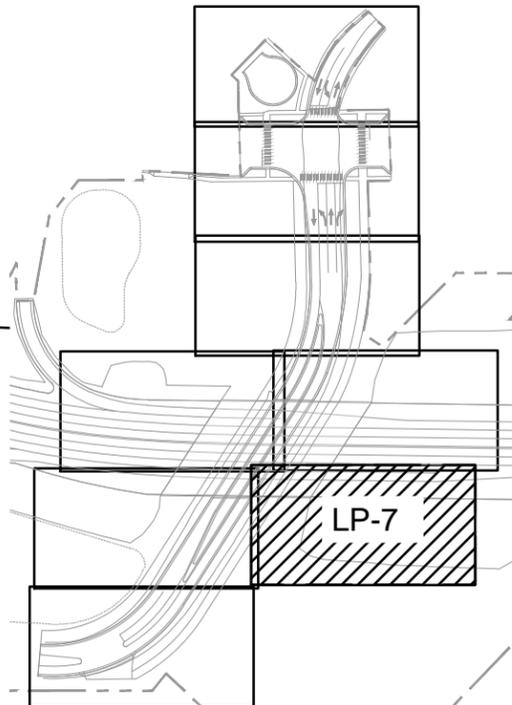
MATCH LINE LP-6

MATCH LINE LP-7

NOTES:

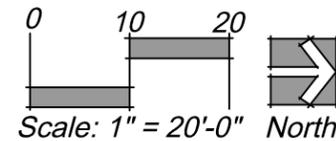
REFER TO SHEET 11.0 FOR PLANT  
LEGEND AND ABBREVIATIONS.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

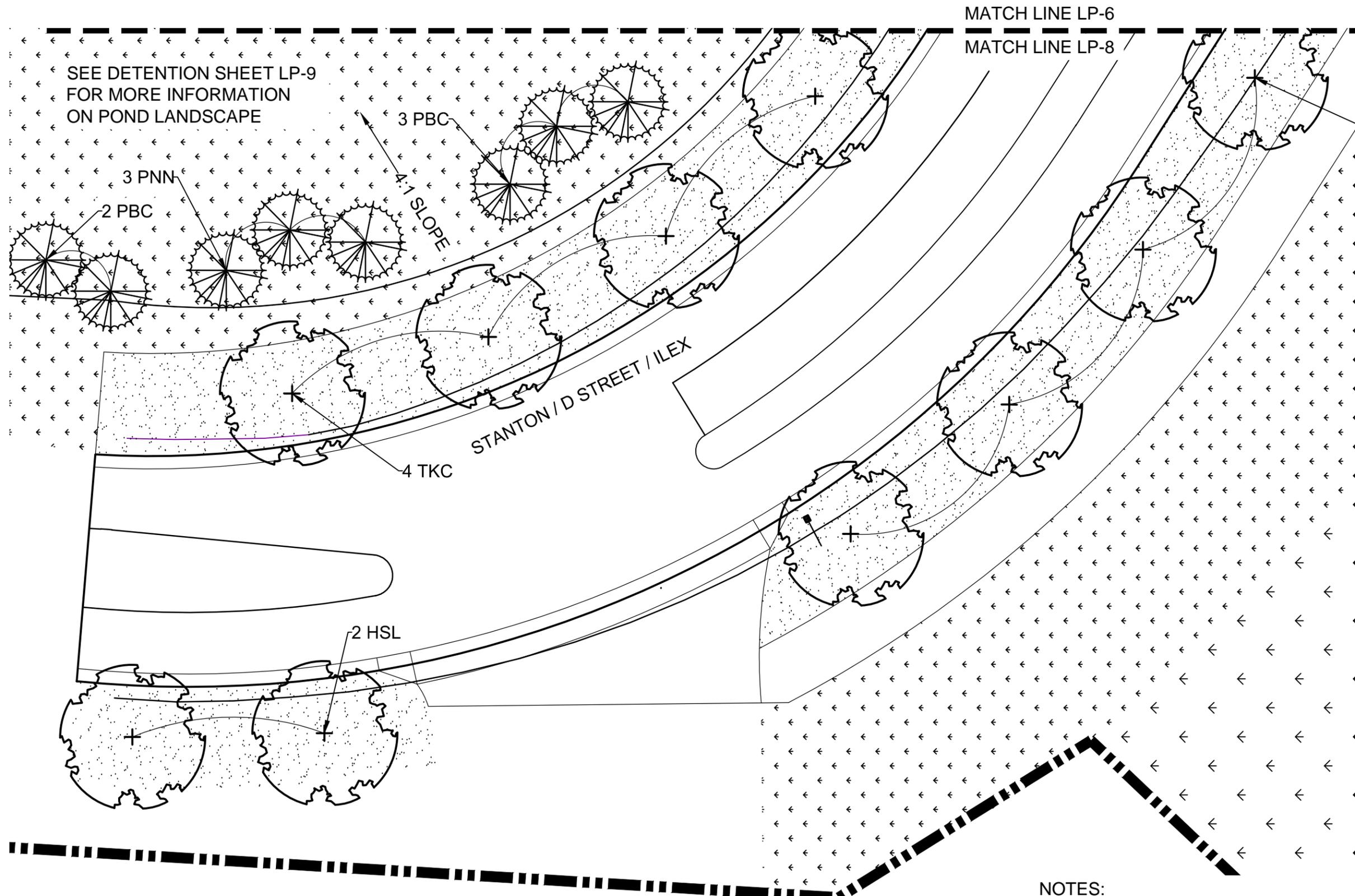


LANDSCAPE PLAN

# LANDSCAPE - LP-7



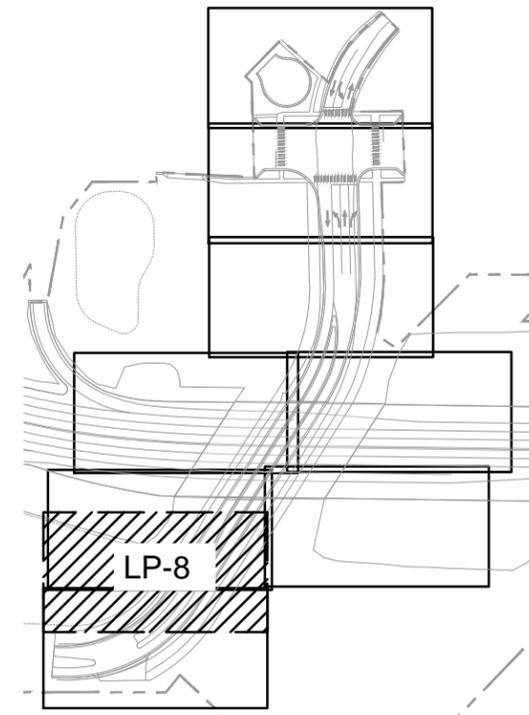
# 11.7



SEE DETENTION SHEET LP-9  
FOR MORE INFORMATION  
ON POND LANDSCAPE

MATCH LINE LP-6  
MATCH LINE LP-8

- PLANT SYMBOL LEGEND**
- DECIDUOUS TREE
  - ORNAMENTAL TREE
  - EVERGREEN TREE
  - DECIDUOUS SHRUB
  - EVERGREEN SHRUB
  - ORNAMENTAL GRASS
  - PERENNIAL
  - LIGHT FIXTURES

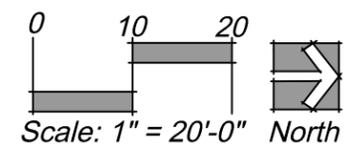


LANDSCAPE PLAN

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

NOTES:  
REFER TO SHEET 11.0 FOR PLANT  
LEGEND AND ABBREVIATIONS.

# LANDSCAPE - LP-8



# 11.8



**PLANT SYMBOL LEGEND**

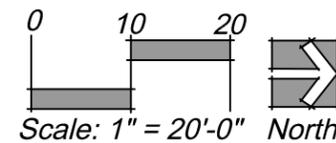
- DECIDUOUS TREE
- ORNAMENTAL TREE
- EVERGREEN TREE
- DECIDUOUS SHRUB
- EVERGREEN SHRUB
- ORNAMENTAL GRASS
- PERENNIAL
- LIGHT FIXTURES

**NOTES:**  
REFER TO SHEET 11.0 FOR PLANT  
LEGEND AND ABBREVIATIONS.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

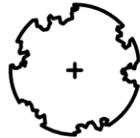
TYPICAL WATER QUALITY POND

# LANDSCAPE - L-9



**PLANT SYMBOL LEGEND**

DECIDUOUS TREE



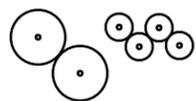
ORNAMENTAL TREE



EVERGREEN TREE



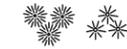
DECIDUOUS SHRUB



EVERGREEN SHRUB



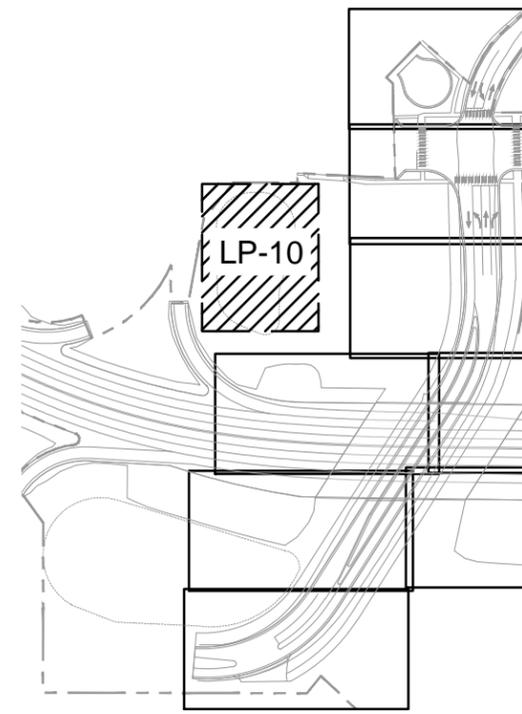
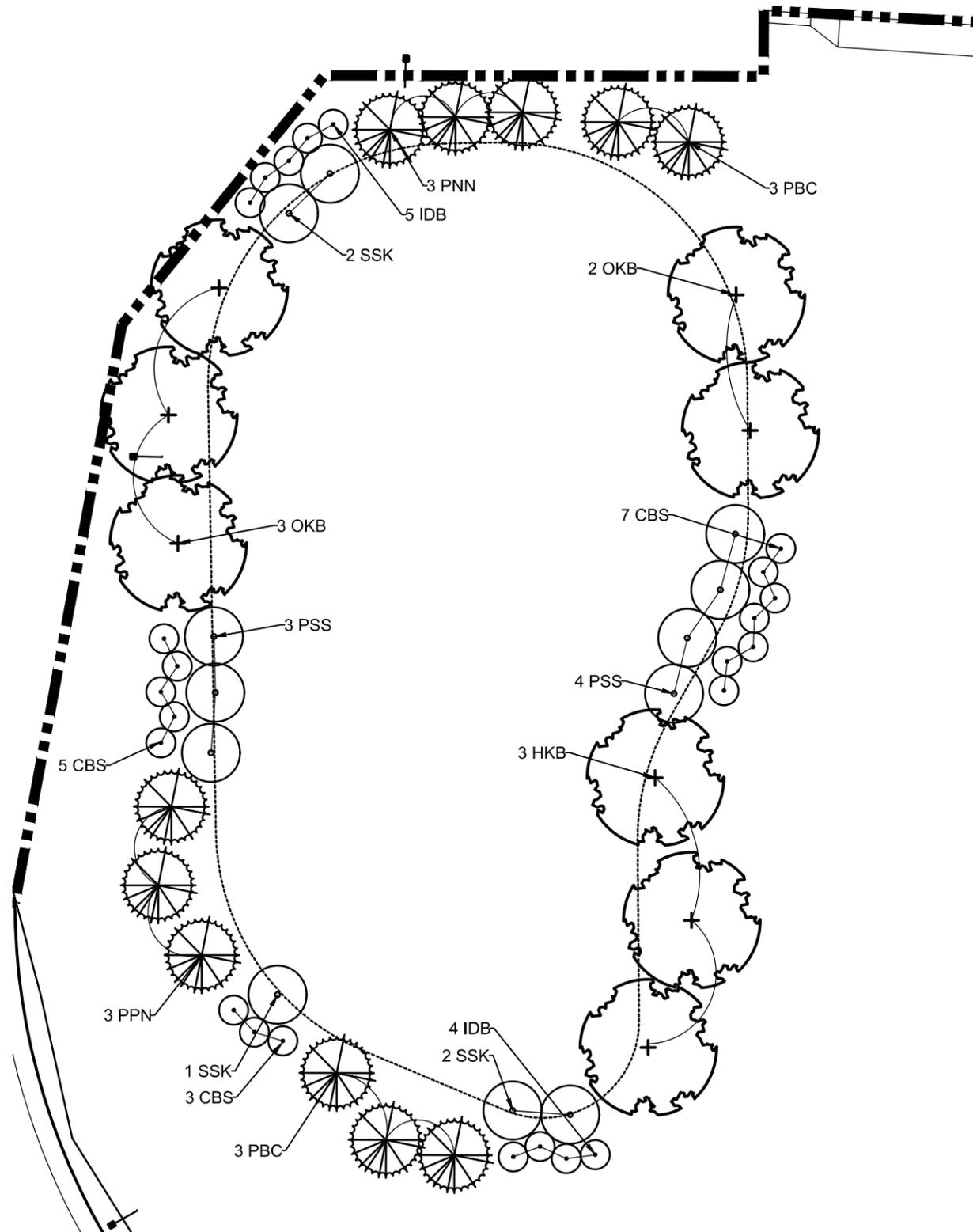
ORNAMENTAL GRASS



PERENNIAL



LIGHT FIXTURES

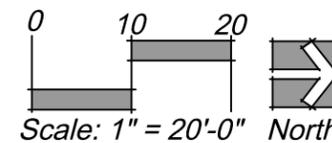


NOTES:  
REFER TO SHEET 11.0 FOR PLANT  
LEGEND AND ABBREVIATIONS.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL  
REQUIREMENTS

TYPICAL WATER QUALITY POND

# LANDSCAPE - LP-10



# 11.10

**GENERAL NOTES**

1. CONTRACTOR TO VERIFY FIELD CONDITIONS AND NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES PRIOR TO PROCEEDING WITH THE WORK.
2. CONTRACTOR SHALL HAVE UTILITIES STAKED OR LOCATED (1-800-922-1987) AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION.
3. PLANTERS ON CORNERS OF SANTA FE AND D STREET SHALL COMPLY WITH THE CITY OF PUEBLO STREETSCAPE DESIGN STANDARDS.
4. ALL NATIVE SEED AREAS SHALL BE DRESSED WITH MULCH OR TACKIFIER.

**NATIVE SEED INFORMATION**

EL PASO LOW GROW MIX - PAWNEE BUTTES SEED, INC.

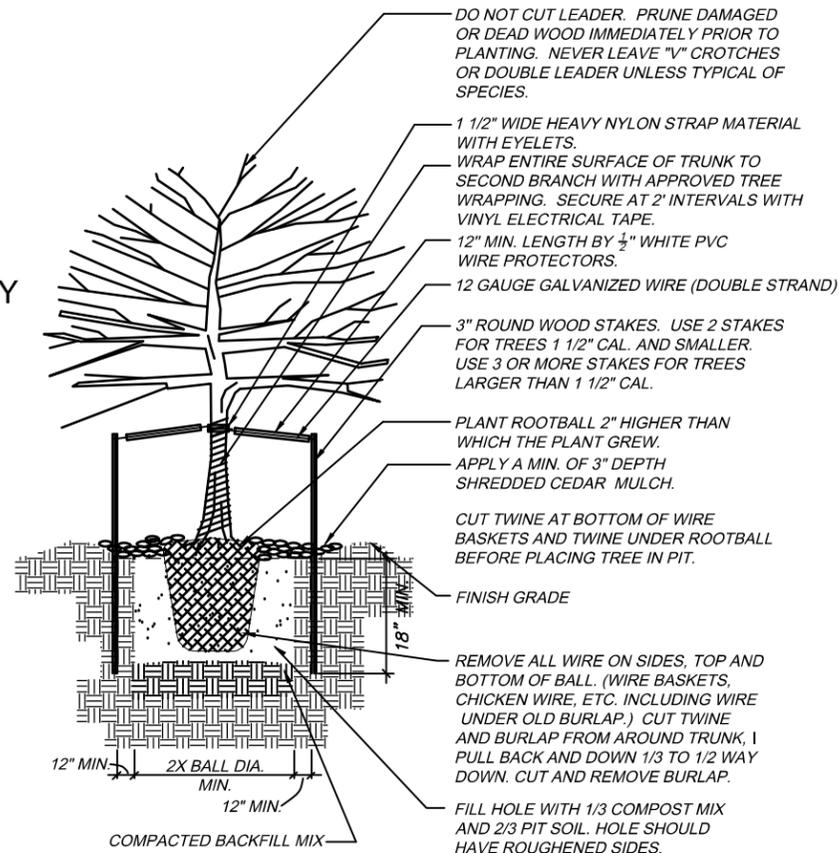
- 20% DACOTAH CERT. SWITCHGRASS
- 10% ROCKY MOUNTAIN FESCUE
- 10% GREEN NEEDLEGRASS, nassella viridula
- 10% REVENUA, SLENDER WHEATGRASS
- 10% ROSANA, CERT. WESTERN WHEATGRASS
- 5% NAZPER, CERT. INDIAN RICEGRASS
- 5% SAND DROPSEED
- 5% MT-1 SANDBERG BLUEGRASS
- 5% GOLDAR, BLUEHUNCH WHEATGRASS
- 5% BUTTE, SIDEOATS GRAMA
- 5% BLUE GRAMA
- 5% ITASCA, LITTLE BLUESTEM
- 5% PAWNEE, CERT. BIG BLUESTEM

**SEEDING RATES:**

DRILLED: 25 LBS/ACRE OR  
BROADCAST: 15 LBS/ACRE

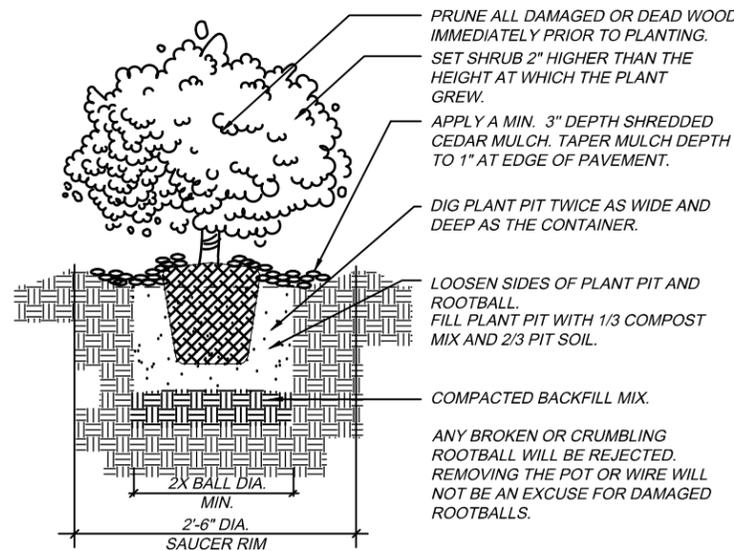
**SOD MIX**

REVELLE SOD MIX - GARDENER TURF GRASS, INC.



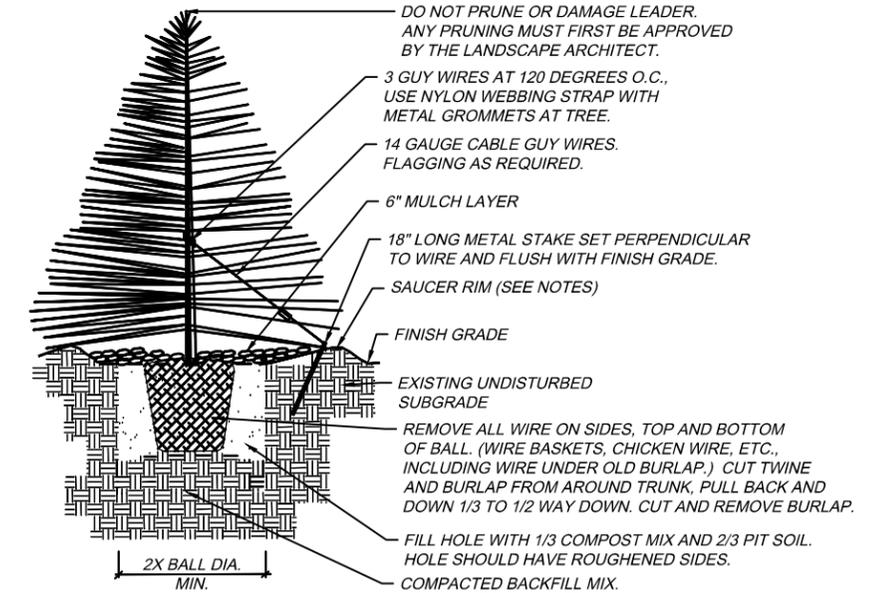
**DECIDUOUS TREE PLANTING DETAIL**

N.T.S.



**SHRUB PLANTING DETAIL**

N.T.S.

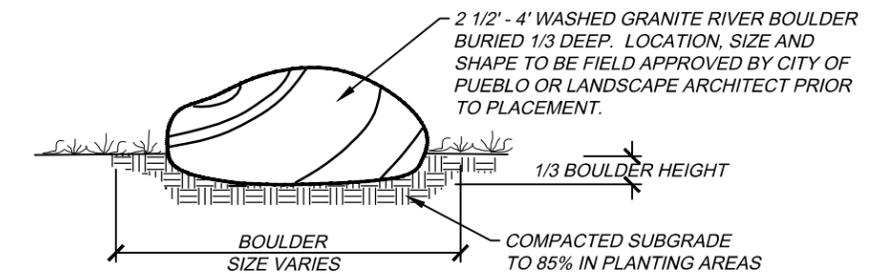


**NOTES:**

1. TREE WILL BE PLANTED TO HAVE SAME RELATIONSHIP TO FINISH GRADE AS ITS PREVIOUS RELATIONSHIP TO FINISH GRADE.
2. WATER THOROUGHLY AT THE TIME OF PLANTING. DO NOT FERTILIZE AT THE TIME OF PLANTING.
3. SAUCER RIM IS TO BE ON DOWNHILL SIDE ONLY WHEN TREES ARE PLANTED ON SLOPES, BUT SHALL COMPLETELY SURROUND TREE WHEN ON LEVEL GROUND.

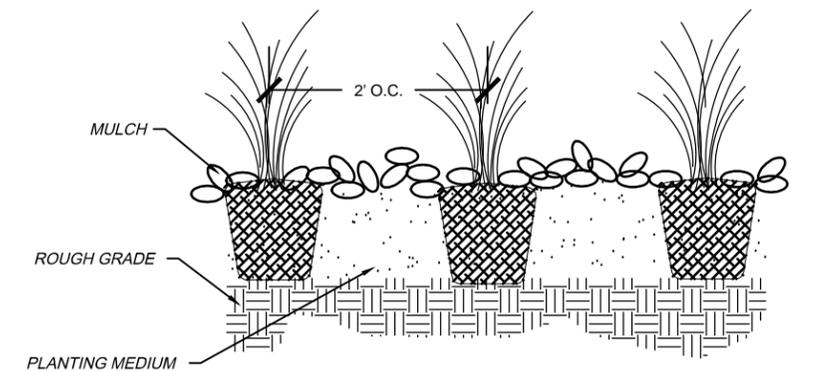
**DECIDUOUS TREE PLANTING DETAIL**

N.T.S.



**BOULDER PLACEMENT**

N.T.S.



PLANTING MEDIUM TILLED TO A DEPTH OF 8" AND SHALL CONSIST OF 4" OF TOPSOIL, 4 CY OF COMPOST PER 1000 S.F. AND FERTILIZER AT A RATIO OF 20-10-10, 1/4 LB. PER 1000 S.F.

**PERENNIAL PLANTING 2' O.C.**

N.T.S.

**LANDSCAPE DETAILS**

SECTION 02900 - LANDSCAPE

PART I - GENERAL

1.01 SCOPE OF WORK

A. THE CONTRACTOR SHALL FURNISH ALL LABOR, EQUIPMENT, MATERIAL, SUPPLIES, AND TRANSPORTATION FOR DELIVERY AND INSTALLATION OF PLANT MATERIAL INCLUDING LAYOUT AND STAKING, TAGGING, PLACEMENT, EXCAVATION, SOIL AMENDMENTS AND CHEMICALS, WRAPPING, STAKING, MULCHING, MAINTENANCE AND GUARANTEE FOR THE COMPLETION OF WORK SHOWN ON THE DRAWINGS, STATED IN THE SPECIFICATIONS, OR OTHERWISE REQUIRED. THIS WORK INCLUDES, BUT IS NOT LIMITED TO, SUB GRADE AND SOIL PREPARATION, PLANT MATERIAL, PLANTING PROCEDURES, MAINTENANCE AND GUARANTEE.

1.02 QUALIFICATIONS

A. APPLICABLE STANDARDS:

1. U.S. DEPARTMENT OF AGRICULTURE RULES AND REGULATIONS UNDER THE FEDERAL SEED ACT.
2. AMERICAN ASSOCIATION OF NURSERYMEN, CURRENT EDITION OF "AMERICAN STANDARD FOR NURSERY STOCK." PUBLISHED BY AMERICAN ASSOCIATION OF NURSERYMEN, INC., 635-636 SOUTHERN BUILDING, WASHINGTON D.C. AND/OR COLORADO NURSERY ACT, RULES AND REGULATIONS; WHICHEVER STANDARD IS GREATER.
3. CERTIFICATES OF INSPECTION FOR PLANTS: ALL NECESSARY STATE, FEDERAL AND OTHER INSPECTION CERTIFICATES SHALL ACCOMPANY THE INVOICE FOR EACH SHIPMENT OF PLANT MATERIALS AS MAY BE REQUIRED BY LAW, AND SHOWING SOURCE OF ORIGIN, CERTIFICATES SHALL BE FILED WITH THE LANDSCAPE ARCHITECT PRIOR TO HIS ACCEPTANCE OF THE MATERIAL.
4. ALL OTHER APPLICABLE FEDERAL AND COLORADO LAWS AS THEY APPLY TO PLANT MATERIALS.

B. INSPECTION AND APPROVAL:

1. ALL TREES SHALL BE INSPECTED AND APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO AND UPON DELIVERY. THE CONTRACTOR SHALL GIVE OWNER'S REPRESENTATIVE 36 HOURS PRIOR NOTICE WHEN THE PLANTS ARE READY FOR INSPECTION AT THE SUPPLIER AND UPON ON-SITE DELIVERY.
2. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT BEFORE DELIVERY, AND PRIOR TO FINAL ACCEPTANCE, ANY AND ALL MATERIALS IN WHICH THE OWNER'S REPRESENTATIVE'S OPINION FAIL TO MEET SPECIFICATIONS. INSPECTION OF MATERIALS IS PRIMARILY FOR QUALITY, SIZE AND VARIETY BUT OTHER REQUIREMENTS ARE NOT WAIVED EVEN THOUGH VISUAL INSPECTION RESULTS IN APPROVAL. PLANTS MAY BE INSPECTED WHERE AVAILABLE. HOWEVER, INSPECTION AT THE PLACES OF SUPPLY SHALL NOT PRECLUDE THE RIGHT OF REJECTION AT THE SITE. REJECTED MATERIALS SHALL BE PROMPTLY REMOVED FROM THE SITE WITHIN 24 HOURS.
3. THE CONTRACTOR SHALL SCHEDULE INSPECTION OF ALL PLANTS AT THE SUPPLIER TO BE COMPLETED IN ONE VISIT.

1.03 SUBMITTALS

A. PROCUREMENT:

1. WITHIN 10 DAYS AFTER THE NOTICE TO PROCEED ISSUED BY THE OWNER, THE CONTRACTOR SHALL FURNISH THE OWNER'S REPRESENTATIVE WITH COPIES OF THE SUPPLYING NURSERIES' CONFIRMATION FOR THE CONTRACTOR'S ORDERS FOR ALL PLANT MATERIAL REQUIRED BY THE PLANS AND SPECIFICATIONS. THE ENTERING OF A PROPOSAL AND EXECUTION OF A CONTACT SHALL BE EVIDENCE THAT THE MATERIAL IS AS SPECIFIED IN THE PLANS.

B. THE CONTRACTOR SHALL SUBMIT TO THE OWNER'S REPRESENTATIVE THEIR SUPPLIER SPECIFICATIONS FOR THE FOLLOWING PRODUCTS (3 WEEKS TO DELIVER):

1. COMMERCIAL FERTILIZER
2. INSECTICIDE, SYSTEMIC PRODUCT FOR TREES
3. TOPSOIL
4. ORGANIC AMENDMENT MATERIAL
5. TREE WRAPPING
6. TREE STAKES AND ACCESSORIES
7. SEED
8. LANDSCAPE EDGER
9. GRAVEL MULCH
10. PLANT MATERIAL - INCLUDING LOCATION OF NURSERY IN AND OUTSIDE OF COLORADO

C. THE CONTRACTOR SHALL SUBMIT TO THE OWNER'S REPRESENTATIVE SAMPLES OF THE FOLLOWING MATERIALS TO BE USED ON THE PROJECT (3 WEEKS PRIOR TO DELIVERY):

1. GRAVEL MULCH (ALL VARIETIES)
2. WOOD MULCH
3. ORGANIC AMENDMENT (COMPOST)
4. TOPSOIL

D. THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE 24 HOURS IN ADVANCE OF PLANTING ANY MATERIAL TO ALLOW THE OWNER'S REPRESENTATIVE THE OPPORTUNITY TO EXAMINE PLANTING PITS BEFORE INSTALLATION OF MATERIAL.

E. MAINTENANCE INSTRUCTIONS:

1. AT COMPLETION OF THE WORK, FURNISH FOUR (4) COPIES OF WRITTEN MAINTENANCE INSTRUCTIONS TO OWNER FOR MAINTENANCE AND CARE OF ALL PLANTED AREAS THROUGHOUT THE YEAR.

F. CONTRACTOR SHALL HAVE AN AGRICULTURAL SOILS TEST RUN ON ON-SITE TOPSOIL FOR DETERMINATION OF NUTRIENT ADDITIVES AND APPLICATION RATES. SUBMIT TEST RESULTS TO OWNER'S REPRESENTATIVE NOT LATER THAN TWO (2) WEEKS PRIOR TO ITS SCHEDULE USE.

1.04 JOB CONDITIONS AND STANDARDS

A. ALL PLANTING WORK SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF A SUPERINTENDENT AND LABORERS THOROUGHLY EXPERIENCED WITH THE WORK OF THIS SECTION AND WHO SHALL BE AT THE PROJECT SITE FOR THE DURATION OF THE WORK OF THIS SECTION.

B. NO PLANTING WORK SHALL TAKE PLACE DURING INCLEMENT WEATHER OR WHEN THE GROUND CONDITIONS ARE, IN THE OPINION OF THE OWNER'S REPRESENTATIVE, NOT IN A CONDITION TO BE PROPERLY WORKED.

C. NO PLANTING WORK SHALL COMMENCE UNTIL THE ADJACENT SITE IMPROVEMENTS, DRAINAGE IMPROVEMENTS, PAVEMENTS, IRRIGATION INSTALLATION AND FINISH GRADING IS COMPLETED. THE IRRIGATION SYSTEM SHALL HAVE BEEN TESTED IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE, AND BE IN OPERATING ORDER PRIOR TO ANY PLANTING.

D. ERECT BARRICADES, FENCING, HIRE TEMPORARY WATCHMEN OR WHATEVER IS DEEMED NECESSARY BY THE CONTRACTOR TO TOTALLY PROTECT THIS WORK.

E. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO PROTECT ALL EXISTING PLANT MATERIAL ON THE SITE, IF ANY, DURING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL ALSO PROVIDE TEMPORARY MAINTENANCE FOR ALL EXISTING PLANT MATERIAL WITHIN THE CONTRACT LIMIT LINES THROUGHOUT THE CONSTRUCTION PERIOD. PROTECTION OF THE EXISTING PLANT MATERIAL SHALL BE APPROVED BY OWNER'S REPRESENTATIVE BEFORE GRADING OPERATIONS COMMENCE.

PART II - PRODUCTS

2.01 GRAVEL MULCH

- A. PROVIDE 1-1/2" GRAY HUED NATURAL GRANITE GRAVEL IN ALL SLOPE AREAS AS INDICATED ON PLAN.
- B. PROVIDE 1-1/2" RED AND ORANGE HUED GRAVEL IN ALL SLOPE AREAS AS INDICATED ON PLAN.

1. MULCH SHALL BE FREE OF SEEDS, WEEDS, TWIGS AND BRANCHES.

2.02 BARK OR WOOD MULCH

A. PROVIDE DOUBLE SHREDDED CEDAR MULCH IN ALL PERENNIAL BEDS AND TREE PITS IN GRASS AREAS, AS SHOWN ON DRAWINGS.

1. SHALL BE CLEAN AND FREE OF WEEDS, STICKS, DIRT, DUST AND OTHER DEBRIS
2. SHALL BE PLACED AT MINIMUM DEPTH OF 3"

2.03 PRE-EMERGENT HERBICIDE

A. PRE-EMERGENT HERBICIDE SHALL BE USED AND APPLIED AS PER MANUFACTURER'S RECOMMENDATIONS FOR WEED CONTROL IN ALL PLANTING/GRAVEL AREAS. PRE-EMERGENT HERBICIDE SHALL BE APPROVED BY OWNER'S REPRESENTATIVE.

2.04 POST-EMERGENT HERBICIDE

1. FOR ALL TURF PLANTING BEDS, PROVIDE A POST-EMERGENT HERBICIDE.
2. POST-EMERGENT HERBICIDE SHALL BE APPROVED BY OWNER'S REPRESENTATIVE.

2.05 INSECTICIDE AND FUNGICIDE

A. FOR ALL TREE PLANTINGS, PROVIDE SYSTEMIC INSECTICIDE.

1. SYSTEMIC INSECTICIDE SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATION AT TIME OF PLANTING OF TREES AND SHRUBS.
2. METHOD OF APPLICATION SHALL BE SOIL INJECTION OR SOIL DRENCH AS PER MANUFACTURER'S RECOMMENDATIONS. APPLY TREATMENT WITH WATER AND KEEP MOIST FOR 7 TO 10 DAYS.
3. INSECTICIDE AND FUNGICIDE SHALL BE APPROVED BY OWNER'S REPRESENTATIVE.

2.06 TREE WRAP

A. TREE WRAPPING MATERIAL SHALL BE OF FIRST QUALITY, 4-INCH WIDE, BITUMINOUS IMPREGNATED TAPE, CORRUGATED OR CREPE PAPER, BROWN IN COLOR, SPECIFICALLY MANUFACTURED FOR TREE WRAPPING. THE CONTRACTOR SHALL SUBMIT A SAMPLE FOR OWNER'S APPROVAL A MINIMUM OF 3 WEEKS PRIOR TO DELIVERY ON SITE.

2.07 STAKING AND GUYING MATERIAL

- A. WIRE SHALL BE 12 GAUGE, DOUBLE STRAND, PLIABLE GALVANIZED STEEL WIRE.
- B. NYLON WEBBING SHALL BE A SOFT, 8 TO 10 CM. WIDE STRIP WITH GROMMETS AT ENDS.
- C. STAKES SHALL BE 2" X 2" X 8' WOOD STAKES OR APPROVED EQUAL.

2.08 FERTILIZER

A. FERTILIZER SHALL BE DELIVERED TO THE SITE, MIXED AS SPECIFIED, IN THE ORIGINAL, UNOPENED STANDARD SIZE BAGS SHOWING WEIGHT, ANALYSIS AND NAME OF MANUFACTURER. CONTAINERS SHALL BEAR THE MANUFACTURER'S GUARANTEED STATEMENT OF ANALYSIS AND SHALL BE FURNISHED TO THE OWNER. STORE FERTILIZER IN A WEATHERPROOF PLACE AND IN SUCH A MANNER THAT IT SHALL BE KEPT DRY AND ITS EFFECTIVENESS SHALL NOT BE IMPAIRED.

B. SUPERPHOSPHATE: SOLUBLE MIXTURE OF TREATED MINERALS, 16% TO 20% AVAILABLE PHOSPHORIC ACID.

C. COMMERCIAL FERTILIZER SHALL CONSIST OF THE FOLLOWING:

1. TABLETS: FOR TREES AND SHRUBS, PROVIDE TIGHTLY COMPRESSED LONG LASTING, SLOW RELEASE TABLETS WEIGHING 21 GRAMS WITH AN ANALYSIS OF 20-10-5, AND A POTENTIAL ACIDITY OF NOT MORE THAN 5% BY WEIGHT.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

LANDSCAPE SPECIFICATIONS

# LANDSCAPE - SPECIFICATIONS



1. GRANULAR: FOR SEEDED AREAS, PROVIDE A GRANULAR, SLOW RELEASE COMMERCIAL FERTILIZER WITH AN ANALYSIS OF 18-46-0 AT A RATE OF 1.5 LBS OF AVAILABLE NITROGEN PER 1,000 SQUARE FOOT OR APPROVED EQUAL. FERTILIZER SHALL BE APPLIED AT A RATE OF 364 LBS PER ACRE.

#### 2.09 ORGANIC SOIL AMENDMENTS

- A. ORGANIC SOIL AMENDMENT SHALL BE A COMPOSTED ORGANIC WOOD AND DECOMPOSED MANURE BASED PRODUCT WITH A CARBON TO NITROGEN RATIO BETWEEN 15:1 AND 30:1, WITH A PH OF 5.0 TO 6.0, AND A SALT CONTENT BELOW 6 MMHOS/CM. OTHER MATERIALS SUCH AS DECOMPOSED MUSHROOM OR VEGETABLE MATTER OF A NATURAL OCCURRENCE MAY BE CONSIDERED FOR APPROVAL.
- B. THE ORGANIC SOIL AMENDMENT SHALL BE FREE OF OBJECTIONABLE ODOR, AND FREE FROM ALL VIABLE WEED SEEDS, FINELY SHREDDED TO PASS 70% THROUGH A 1/8 INCH MESH.
- C. ORGANIC SOIL AMENDMENT SHALL BE ADDED TO ALL PLANTING AND SOD AREAS AT A RATE OF 3 CY PER 1,000 S.F. ORGANIC SOIL AMENDMENT SHALL BE TILLED TO A DEPTH OF 12".

#### 2.10 PLANT MATERIALS

- A. A LIST OF PLANTS TO BE PROVIDED IS SHOWN ON THE DRAWINGS.

- B. ALL PLANTS SHALL:

1. BE THE SPECIES DESIGNATED ON THE PLANS. NO SUBSTITUTIONS SHALL BE ACCEPTED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVE.
2. BE INDIVIDUALLY IDENTIFIED ON LEGIBLE, WEATHER-PROOF LABELS SECURELY ATTACHED TO THE PLANTS. TAGS TO REMAIN UNTIL AFTER PUNCH LIST INSPECTION OR FINAL ACCEPTANCE AND THEN SHALL BE REMOVED BY THE CONTRACTOR. LABELS SHALL INCLUDE THE CORRECT GENUS, SPECIES, VARIETY NAME AND ACCEPTED COMMON NAME OF THE PLANT AS WELL AS THE SIZE OR GRADE OF STOCK.
3. HAVE A WELL DEVELOPED BRANCH STRUCTURE TYPICAL OF THE SIZE AND SPECIES AND AS SPECIFIED ON PLANTING LIST.
4. HAVE A WELL-BRANCHED AND VIGOROUS ROOT SYSTEM TYPICAL OF THE SIZE AND SPECIES AND FREE FROM "J" ROOTS, ROOT GIRDLING THE TRUNK AND OTHER DEFECTS.
5. HAVE HEALTHY BUDS WHICH ARE WITHOUT MECHANICAL, INSECT OR DISEASES.
6. BE HEALTHY AND VIGOROUS PLANTS FREE FROM VISUAL DEFECTS, MECHANICAL INJURIES, PLANT DISEASES AND ALL FORMS OF INSECT INFESTATION UNTIL FINAL ACCEPTANCE.
7. BE NURSERY-GROWN, MEANING PLANTS THAT HAVE BEEN GROWING IN A NURSERY EITHER LINED OUT OR CONTAINERIZED FOR A MINIMUM OF TWO GROWING SEASONS AND HAVING BEEN ROOT PRUNED ACCORDING TO ACCEPTABLE NURSERY PRACTICE.
8. HAVE BEEN GROWN UNDER SIMILAR CLIMATIC CONDITIONS OR SIMILAR ZONE AS THAT OF THE PROJECT'S LOCATION PRIOR TO PLANTING.
9. CONFORM TO REQUIREMENTS OF PLANT LIST AND KEY ON DRAWINGS AND TO "HORTICULTURAL STANDARDS" OF AMERICAN ASSOCIATION OF NURSERYMEN AS TO KIND, SIZE, AGE, ETC.

#### 2.11 LANDSCAPE EDGER

- A. LANDSCAPE EDGER SHALL BE A ROLLED TOP, 3/16" X 5 1/2 " ALUMINUM EDGER WITH ALUMINUM STAKES OR PINS FOR SUPPORTS, FACTORY PAINTED DARK GREEN.

#### 2.12 GEOTEXTILE FABRIC

- A. GEOTEXTILE FABRIC (FILTER FABRIC) SHALL BE INSTALLED ONLY BENEATH ROCK MULCH.

- 2.13 TOPSOIL: SEE SPECIFICATION OF SECTION 02923, TOPSOIL.

#### 2.14 APPROVAL

- A. ALL MATERIALS, FERTILIZERS, GUYING AND STAKING MATERIALS, ETC. SHALL BE APPROVED BY THE CITY OF PUEBLO PRIOR TO USE ON THE PROJECT. CONTACT THE CITY OF PUEBLO FOR SPECIFIC MATERIALS RECOMMENDED OR REQUIRED.

### PART III - EXECUTION

#### 3.01 EXAMINATION

- A. BEFORE PROCEEDING WITH WORK, CHECK AND VERIFY DIMENSIONS AND QUANTITIES. REPORT VARIATIONS BETWEEN DRAWINGS AND SITE TO OWNER BEFORE PROCEEDING WITH THE WORK OF THIS SECTION.
- B. PLANT TOTALS ARE FOR CONVENIENCE OF CONTRACTOR ONLY AND ARE NOT GUARANTEED. VERIFY AMOUNTS SHOWN ON DRAWINGS.
- C. ALL PLANTING INDICATED ON DRAWINGS IS REQUIRED UNLESS INDICATED OTHERWISE.

#### 3.02 LAYOUT AND IDENTIFICATION

- A. THE CONTRACTOR SHALL LOCATE AND STAKE ALL TREE AND SHRUB LOCATIONS AND SOD LIMITS ACCORDING TO LOCATIONS SHOWN ON PLANS. ALL PLANTING LOCATIONS SHALL BE OBSERVED AND APPROVED BY THE OWNER'S REPRESENTATIVE, PRIOR TO PLANTING OPERATIONS.
- B. THE CONTRACTOR SHALL MAKE MINOR MODIFICATIONS IN PLANTING LOCATIONS AS DIRECTED BY THE OWNER'S REPRESENTATIVE.

#### 3.03 PLANT PROTECTION AND DELIVERY

- A. ALL PLANT MATERIAL SHALL BE PROTECTED FROM THE TIME OF DIGGING, TO THE TIME OF FINAL ACCEPTANCE FROM INJURY, EXCESSIVE DRYING WINDS, IMPROPER VENTILATION, OVERWATERING, FREEZING, HIGH TEMPERATURES OR ANY OTHER CONDITION DAMAGING TO THE PLANT. ANY PLANTS SHOWING EVIDENCE OF POOR CARE, OR WHICH ARE MOLDED, MILDEWED, WILTED OR DRIED OUT SHALL BE REJECTED.
- B. PLANT MATERIAL SHALL BE PLANTED ON THE DAY OF DELIVERY OR SHALL BE PLACED IN A TEMPORARY NURSERY, KEPT MOIST, SHADED AND PROTECTED FROM SUN AND WIND. IF BALLED AND BURLAP PLANTS ARE NOT PLANTED ON THE DAY OF DELIVERY, THEY SHOULD BE PROTECTED WITH DAMP SOIL, MOSS, OR OTHER ACCEPTABLE MATERIAL TO THE FULL HEIGHT OF THE ROOT BALL.
- C. PLANTS SHALL NOT BE BOUND WITH WIRE OR ROPE THAT MAY DAMAGE THE BARK OR BREAK BRANCHES. PLANTS SHALL BE LIFTED AND HANDLED FROM BOTTOM OF BALL OR CONTAINER. PLANTS WITH BALLS LOOSE, CRACKED OR BROKEN, MAN-MADE, OR COMPLETELY DRY PLANTS WITH TRUNKS LOOSE IN THE BALL BEFORE OR DURING PLANTING OPERATIONS SHALL NOT BE ACCEPTED AND SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE WITHIN 24 HOURS.

#### 3.04 EXCAVATION OF PLANTING PIT

- A. ALL PLANT PITS SHALL BE CENTERED ON THE LOCATION STAKE, SHALL BE EXCAVATED IN A CYLINDRICAL SHAPE WITH SLOPED/TAPERED SIDES AND FLAT BOTTOM. THE DEPTH OF THE PLANT SHALL BE MEASURED FROM THE FINISH GRADE OF SOIL NOT MULCH AND AS DETAILED IN THE CONTRACT DRAWINGS. THE BASE OF ALL SOIL BALLS SHALL BE PLACED ON COMPACTED BACKFILL FILL.
- B. TREES: THE DIAMETER OF ALL TREE PITS SHALL BE A MINIMUM OF 24" LARGER THAN THE DIAMETER OF THE BALL OR SPREAD OF THE ROOTS. EXCEPT AS INDICATED ON PLANTING DETAIL SHEETS. REMOVE WIRE BASKETS, BUNDLING CORDS, AND THE TOP 1/3 OF BURLAP FROM THE TREES. EXCEPT FOR TREES PLANTED ON SLOPES, THE TOP SURFACE OF ALL ROOT BALLS SHALL BE FLUSH WITH ADJACENT PLANTING BEDS OR WITH THE SUB GRADE BELOW SOD. IT IS IMPORTANT NOT TO PLACE TREE BALLS TOO LOW.

- C. SHRUBS: THE DIAMETER OF ALL SHRUB PITS SHALL BE A MINIMUM OF TWICE THE DIAMETER

OF THE BALL OR SPREAD OF ROOTS. THE BASE OF ALL SOIL BALLS SHALL BE PLACED ON COMPACTED BACKFILL FILL.

- D. VINES, GROUND COVERS AND PERENNIALS: THE DIAMETER OF ALL VINE AND GROUND COVER PITS SHALL BE 6 INCHES GREATER THAN THE SPREAD OF ROOTS.

#### 3.05 PLANT INSTALLATION PROCEDURE

##### A. PLANTING AND STAKING:

1. PLANTS SHALL BE SET IN THE CENTER OF THE PIT ON COMPACTED BACKFILL MIX. IMMEDIATELY AFTER SETTING THE PLANT IN THE PIT, ALL NON-BIODEGRADABLE MATERIALS SHALL BE COMPLETELY REMOVED FROM THE BALL AND TRUNK, INCLUDING BUT NOT LIMITED TO PLASTIC, METAL, WIRE, WOOD, CARDBOARD, PAPER, FIBER, TREATED BURLAP AND TWINE. THE ONLY EXCEPTIONS SHALL BE THE BOTTOMS (NOT SIDES) OF FIBER POTS. PLANT HANDLING SHALL BE DONE IN SUCH A MANNER AS NOT TO INJURE THE PLANT ROOT SYSTEM, DISTURB THE SOIL BALL OR IN ANY OTHER WAY CAUSE HARM OR STRESS TO THE PLANT. IF THE ROOT SYSTEM OF A CONTAINER-GROWN PLANT HAS BECOME CONTAINER-BOUND, THE ROOTS SHALL BE GENTLY CUT VERTICALLY ON FOUR SIDES OF THE ROOT BALL PRIOR TO PLANTING.
2. ALL PLANTS SHALL BE PLACED AND KEPT PLUMB AND STRAIGHT AS THE PIT IS FILLED WITH BACKFILL MIX. CONTRACTOR SHALL ADJUST ANY PLANT WHICH IS NOT PERFECTLY UPRIGHT, AND PRIOR TO ACCEPTANCE, TO A PLUMB POSITION. TREES AND SHRUBS IN NON-IRRIGATED AREAS TO HAVE SAUCERS BUILT AROUND THEM AT THE DRIP LINES.
3. AFTER PLACING TREE IN THE PIT, THE HOLE AROUND THE PLANT ROOT SYSTEM SHALL BE HALFWAY BACKFILLED WITH SPECIFIED MIX AND ANY LARGE AIR POCKETS REMOVED BY HAND WITH THE BLUNT, HANDLE END OF A SHOVEL OR OTHER SUCH HAND TOOL. IF THE OWNER DETERMINES THAT THE BALL IS EXCESSIVELY DRY, THE CONTRACTOR SHALL THEN INSET A DEEP WATERING DEVICE INTO THE BALL AT A 45-DEGREE ANGLE EVERY 8 INCHES FOR ONE MINUTE. THE PIT SHALL THEN BE COMPLETELY FILLED WITH BACKFILL MIX AND TAMPED AGAIN WITH A SHOVEL. NO MECHANICAL COMPACTION SHALL BE ALLOWED. THE PIT SHALL THEN BE WATERED BY THOROUGHLY SATURATING THE BACKFILL WITH WATER TO A MINIMUM OF 3 FEET SURFACE DIMENSION. NO WATERING SHALL BE DONE PRIOR TO THIS TIME. WATERING SHALL BE REPEATED ONCE WHEN ALL FREE WATER HAS DISAPPEARED. THE SECOND WATERING SHALL NOT BE COMPLETED IF THE SUB GRADE AROUND THE PIT IS ALREADY MOIST. AFTER THE SECOND WATERING, THE CONTRACTOR SHALL ADD THE SPECIFIED MULCH. ALL SURPLUS SOIL AND DEBRIS SHALL BE REMOVED BY THE CONTRACTOR. THE CONTRACTOR SHALL STAKE AND GUY TREES IMMEDIATELY AFTER PLANTING ACCORDING TO STANDARD DETAIL.
4. FOR TREES IN GRASS AND PLANTING BEDS, THE CONTRACTOR SHALL DRIVE STAKES 3 FEET VERTICALLY INTO FIRM SOIL OUTSIDE THE PLANT PIT. THE CONTRACTOR SHALL RUN WIRE UP TO THE TREE TRUNK AND THROUGH THE NYLON WEBBING WRAPPED AROUND THE TREE AT APPROXIMATELY 1/2 THE HEIGHT OF THE TREE. WEBBING AND WIRE ATTACHMENT BETWEEN STAKE AND TREE SHALL BE ADJUSTED SO THE STRAPS ARE UNDER JUST ENOUGH TENSION TO AVOID VISIBLE SAG IN THE LINES.
5. CONTRACTOR SHALL PLACE STAKES ACCORDING TO THE CONSTRUCTION DETAIL. THE CONTRACTOR SHALL RETURN TO THE SITE AND REMOVE STAKES ONE YEAR FROM PLANTING.

##### B. SPRAYING, WRAPPING, PRUNING, WATERING AND MULCHING:

1. ALL DECIDUOUS TREES SHALL BE WRAPPED BY THE CONTRACTOR BETWEEN NOVEMBER 1ST AND APRIL 15TH OF THE YEAR IN WHICH THEY ARE PLANTED. SPECIFIED TREE WRAP SHALL BE CUT IN A CONTINUOUS STRIP OF SUFFICIENT LENGTH TO WRAP THE TREE. THIS WRAPPING SHALL BEGIN AT THE GROUND LINE WITH OVERLAPPING WRAPS OF 1 1/2 INCHES TERMINATING ABOVE THE LOWEST MAIN BRANCH OF THE TREE. FINAL WRAP SHALL BE SECURED WITH TAPE IN A MINIMUM OF THREE PLACES. THE CONTRACTOR SHALL RETURN TO THE SITE THE FOLLOWING SPRING AND REMOVE THE WRAP ONCE THE DANGER OF FROST HAS PASSED. THE CONTRACTOR SHALL NOTIFY THE OWNER A MINIMUM OF 1 WEEK PRIOR TO WRAP REMOVAL.

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2. AFTER INSPECTION, AND WITH THE APPROVAL OF THE OWNER, THE CONTRACTOR SHALL NEATLY PRUNE PLANTS AS NECESSARY TO REMOVE ONLY DEAD, INJURED, DISEASED OR CROSSING BRANCHES. ALL CUTS SHALL BE MADE JUST OUTSIDE OF THE FLARE OF THE BRANCH BASE, LEAVING A SLIGHT STUB. ALL PRUNING SHALL BE EXECUTED SO AS TO PRESERVE THE NATURAL FORM AND CHARACTER OF THE PLANT. THE CONTRACTOR SHALL RETURN TO THE SITE ONE YEAR FROM THE INSTALLATION OF THE PLANTS AND PRUNE ALL DEAD, DISEASED OR INJURED BRANCHES FROM THE PLANTS AS SPECIFIED ABOVE. THE CONTRACTOR SHALL NOTIFY THE OWNER 1 WEEK PRIOR TO COMMENCING THE PRUNING TASK.
3. AFTER WATERING ON DAY OF PLANTING, AND THROUGHOUT THE MAINTENANCE PERIOD UP TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL ENSURE THAT THE PLANTS ARE NOT OVER OR UNDER WATERED BY ONLY WATERING WHEN THE CONTRACTOR'S ON-SITE TESTING OF SOIL MOISTURE INDICATES THE ROOT ZONE AT 4 INCH DEPTH HAS BEGUN TO DRY OUT.
4. SPECIFIED GRAVEL OR BARK MULCH SHALL BE PLACED IN ALL PLANTING BED, SHRUB AREAS AND AT THE BASE OF EACH TREE. THE MULCH SHALL BE SPREAD CAREFULLY AND EVENLY TO MINIMUM DEPTH OF THREE INCHES. THE MULCHED AREAS SHALL BE GRADED SO THAT THE TOP OF THE MULCH WILL BE FLUSH WITH THE TOP OF THE PAVEMENT, AND ½" INCH BELOW THE TOP OF THE CURB.
5. UNDERGROUND OBSTRUCTIONS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGE TO ANY UNDERGROUND UTILITY, OR OTHER IMPROVEMENTS. IN THE EVENT A PIPE, LINE, ROCK FORMATION, OR OTHER OBSTRUCTION INTERFERES WITH THE PLANT LOCATION, THE CONTRACTOR SHALL NOTIFY THE OWNER TO RECEIVE A NEW PLANT LOCATION.

C. BACKFILL FOR TREES AND SHRUBS

1. ORGANIC SOIL AMENDMENT: 33% VOLUME OF BACKFILL.
2. PLANTING PIT EXCAVATED MATERIAL: 67% VOLUME OF BACKFILL.
3. FERTILIZER TABLETS: ONE 21 GRAM FERTILIZER TABLET FOR EACH ½" OF TREE TRUNK CALIPER AND ONE TABLET PER 12 INCHES HEIGHT, OR SPREAD (WHICHEVER IS GREATER) FOR EACH SHRUB.
4. INSECTICIDE: TREES: INSTALL 1.0 TO 1.4 LEVEL TEASPOONS PER ONE-INCH OF TRUNK DIAMETER (D.B.H., AT BREAST HEIGHT) MINIMUM ONE (1) TEASPOON PER 2" CALIPER TREE. SHRUBS: INSTALL 0.7 TO 1.4 LEVEL TEASPOONS PER ONE-FOOT OF HEIGHT OF SHRUB.

3.06 SOIL PREPARATION

A. SOIL PREPARATION AND MULCHING FOR ALL LANDSCAPE AREAS, INCLUDING SEED AND SOD AREAS:

1. FINISH GRADING SHALL BE PERFORMED TO FILL IN EROSION GULLIES ON SLOPES IDENTIFIED ON DRAWINGS. WHERE THE USE OF LARGE MACHINERY IS DIFFICULT, FINISHED GRADE SHALL BE WORKED WITH SMALLER EQUIPMENT OR BY HAND.
2. REMOVE ALL RUBBLE, STONE AND EXTRANEIOUS MATERIAL OVER TWO (2) INCHES IN DIAMETER FROM THE SITE.
3. FOR PLANTING AREAS, APPLY SHORT TERM HERBICIDE TO INHIBIT UNWANTED PLANT GROWTH PRIOR TO SEEDING. APPLY IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION FOR THIS PURPOSE AND SUFFICIENTLY IN ADVANCE OF PLANTING TO AVOID DAMAGE TO NEW PLANTS AND GRASS. SHORT TERM HERBICIDE SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE.
4. SPREAD APPROVED TOPSOIL AND THE FOLLOWING AMENDMENTS TO THE AREAS SPECIFIED ON THE DRAWINGS. NO ROTOTILLING OR DISKING OF TOPSOIL DRESSING. SEEDING TO FOLLOW WITHIN 7 DAYS OF TOPSOIL APPLICATION.
  - a. ORGANIC SOIL AMENDMENT: APPLY 3 CUBIC YARDS PER 1,000 SQUARE FEET.
  - b. COMMERCIAL FERTILIZER (18-46-0): APPLY 15 LBS OF AVAILABLE NITROGEN PER 1,000 SQUARE FEET.

- c. SUBSTANTIATE QUANTITIES WITH DELIVERY TICKETS AND EMPTY MANUFACTURER BAGS ON A DAILY BASIS TO OWNER.
5. FINE GRADE TO RESTORE SMOOTH EVEN FINISH GRADES AND TO INSURE POSITIVE SURFACE DRAINAGE. NO PLANTING SHALL TAKE PLACE UNTIL OWNER ACCEPTS FINAL GRADE.
6. PROVIDE SOIL TEST OF FINISHED GRADE CONDITION TO LANDSCAPE ARCHITECT BEFORE PLANTING OR SEEDING OPERATIONS OCCUR.
7. MOISTEN PREPARED SOD/SEED AREAS BEFORE PLANTING IF SOIL IS DRY. WATER THOROUGHLY AND ALLOW SURFACE MOISTURE TO DRY BEFORE PLANTING LAWNS. DO NOT CREATE A MUDDY SOIL CONDITION.

3.07 INSTALLATION OF LANDSCAPE EDGER

A. CONTRACTOR SHALL INSTALL EDGING AS PER MANUFACTURER'S RECOMMENDATION. EDGING SHALL BE INSTALLED BETWEEN ALL PLANT BEDS AND SOD/SEEDED AREAS, OR AS SHOWN ON THE PLANS.

3.08 SCHEDULE

- A. NO PLANTING WORK SHALL TAKE PLACE DURING FREEZING, EXCESSIVE WIND OR WET WETHER, OR WHEN CONDITIONS AR, IN THE OPINION OF THE OWNER, NOT IN A CONDITION TO BE PROPERLY WORKED. CONTRACTOR SHALL INCLUDE TIME IN HIS SCHEDULE FOR WORK STOPPAGE DUE TO INCLEMENT WEATHER OR GROUND CONDITIONS. INCLEMENT WEATHER OR GROUND CONDITIONS SHALL NOT BE CAUSE FOR AN EXTENSION OF PROJECT COMPLETION DATE UNLESS WRITTEN APPROVAL HAS BEEN OBTAINED FROM THE OWNER FOR EXTENSION OF THE PROJECT COMPLETION DATE.
- B. NO PLANTING WORK SHALL COMMENCE UNTIL THE ADJACENT SITE IMPROVEMENTS, PAVEMENTS, UTILITY INSTALLATION AND FINISH GRADING IS COMPLETED. THE CONTRACTOR SHALL LIMIT HIS USE OF HEAVY EQUIPMENT ON PAVEMENTS AND PLANTED AREAS. IN ALL CASES, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING CONDITIONS.

3.09 CLEAN-UP

- A. MATERIALS BROUGHT INTO THE PROJECT AREA SHALL BE NEATLY STOCKPILED UPON COMPLETION OF EACH PLANTING DAY. DEBRIS WILL BE REMOVED FROM THE PROJECT AREA AT COMPLETION OF EACH DAY'S WORK.
- B. THE CONTRACTOR SHALL REMOVE FROM THE SITE, EQUIPMENT, EXCESS SOIL AND OTHER DEBRIS WHICH WAS REVEALED IN THE PLANTING PROCESS.

3.10 MAINTENANCE, ACCEPTANCE AND GUARANTEE

- A. MAINTENANCE PERIOD SHALL BEGIN IMMEDIATELY AFTER EACH AREA IS PLANTED BASED ON THE FOLLOWING REQUIREMENTS:
1. ALL PLANTING SHALL BE PROTECTED AND MAINTAINED UNTIL FINAL ACCEPTANCE OF ALL WORK. MAINTENANCE SHALL INCLUDE MOWING, WATERING, WEEDING, CULTIVATING, MULCHING, TIGHTENING AND REPAIRING OF GUYS, ADJUSTING METAL EDGER, REMOVAL OF DEAD BRANCHES, RESETTING PLANTS TO PROPER GRADE OR UPRIGHT POSITION, BARRICADING THE SITE AND OTHER NECESSARY OPERATIONS. THE CONTRACTOR SHALL PROVIDE ALL WATER AND EQUIPMENT NECESSARY FOR MAINTENANCE DURING THE DURATION OF THE CONTRACT. WATER IS AVAILABLE AT THE PLANTING SITE. AFTER FINAL ACCEPTANCE, MAINTENANCE BECOMES THE RESPONSIBILITY OF THE OWNER.
  2. IF DURING THE DURATION OF THE CONTRACT PERIOD, BUT PRIOR TO THE FINAL ACCEPTANCE, ANY OF THE PLANTS DIE, OR IF THEY ARE, IN THE OPINION OF THE OWNER, IN AN UNHEALTHY OR UNSIGHTLY CONDITION OR IF THEY HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES OR EXCESSIVE PRUNING OF BRANCHES, THEN THE CONTRACTOR SHALL REPLACE THE MATERIAL AT THE CONTRACTOR'S EXPENSE. THIS REPLACEMENT SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE OF THE PROJECT AND SHALL NOT VOID THE TWO YEAR GUARANTEE.
  3. VANDALISM, THEFT OR OTHER DAMAGE TO THE PLANTINGS OR RELATED WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL WORK RECEIVES FINAL ACCEPTANCE.

- B. PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL FURNISH FOUR (4) COPIES OF WRITTEN MAINTENANCE INSTRUCTIONS TO OWNER FOR MAINTENANCE AND CARE OF ALL NEW PLANTED AREAS FOR THE FIRST THREE YEARS AFTER INSTALLATION. THESE INSTRUCTIONS SHALL INCLUDE BUT NOT BE LIMITED TO STAKING, PRUNING, INSECT AND DISEASE CONTROL AND FERTILIZING.

C. GUARANTEE:

1. FOR THE PERIOD OF TWO YEARS AFTER FINAL ACCEPTANCE OF ALL WORK, AND AT NO ADDITIONAL COST TO THE OWNER, THE CONTRACTOR SHALL REPLACE ANY PLANTS THAT HAVE DIED, ARE PARTIALLY DEAD, IF THEY ARE IN THE OPINION OF THE OWNER, IN AN UNHEALTHY OR UNSIGHTLY CONDITION, OR THEY HAVE LOST THEIR NATURAL SHAPE DUE TO DEAD BRANCHES OR EXCESSIVE PRUNING OF DEAD BRANCHES. INADEQUATE OR IMPROPER MAINTENANCE BY THE OWNER SHALL NOT BE CAUSE FOR REPLACEMENT BY THE CONTRACTOR PROVIDED THE CONTRACTOR SHALL HAVE SUBMITTED THROUGHOUT THE GUARANTEE PERIOD A BI-WEEKLY LETTER OF REPORT TO THE OWNER ON IMPROPER OR INADEQUATE MAINTENANCE PRACTICES AND RECOMMENDED REMEDIAL ACTIONS. THE CONTRACTOR SHALL APPLY A "NEW" TWO YEAR GUARANTY PERIOD TO EACH REPLACEMENT PLANT THAT IS INSTALLED. THE CONTRACTOR SHALL GUARANTY ALL PLANTS TO BE TRUE TO NAME AND TO MEET ALL CONDITIONS OF THESE SPECIFICATIONS. ANY PLANT THAT IS NOT TRUE TO NAME AS INDICATED BY LEAF, FLOWER FORM OR FRUITING CHARACTERISTICS REVEALED WITHIN GUARANTEED PERIOD SHALL BE REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. ALL REPLACEMENT PLANTING UNDER THE GUARANTEE PROVISION SHALL BE EXECUTED WITHIN ONE MONTH OF NOTICE TO REPLACE SUCH PLANTS. UPON OWNER'S WRITTEN APPROVAL, THE CONTRACTOR SHALL REPLACE REJECTED PLANTS AT A LATER DATE, MUTUALLY AGREED UPON, PROVIDED THAT THE CONTRACTOR REMOVES ALL REJECTED PLANTS WITHIN SEVEN (7) DAYS OF THE NOTICE TO REPLACE SUCH PLANTS. IF THE REJECTED PLANTS ARE NOT REMOVED WITHIN SEVEN (7) DAYS, THE OWNER MAY AT HIS OPTION REMOVE THESE PLANTS AND COST OF THE REMOVAL SHALL BE CHARGED TO THE CONTRACTOR. REPLACEMENT PLANTING IS TO BE IN ACCORDANCE WITH ORIGINAL SPECIFICATIONS AND ITS COST CONSIDERED TO BE INCLUDED IN THE BID PRICE. ALL AREAS DAMAGED BY TREE OR SHRUB PLANTING OR REPLACEMENT OPERATIONS ARE TO BE FULLY RESTORED TO THEIR ORIGINAL CONDITIONS AS SPECIFIED.

END OF SECTION 02900

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LANDSCAPE SPECIFICATIONS

# LANDSCAPE - SPECIFICATIONS



SECTION 02923 - TOPSOIL

PART 1 - GENERAL

1.01 RELATED WORK:

A. SECTION 02900 PLANTING AND LANDSCAPE

1.02 SOURCE QUALITY CONTROL:

A. A TESTING LABORATORY APPROVED BY THE CITY OF PUEBLO AND PAID FOR BY THE CONTRACTOR WILL CARRY OUT AN INSPECTION AND TESTING OF SOIL MIXTURE.

B. TEST SOIL FROM SOURCE FOR SAND, SILT AND CLAY, NPK, MG, SOLUBLE SALT CONTENT, PH VALUE, AND ORGANIC MATTER. TEST SOIL PRIOR TO TRANSPORTING TO SITE. A RANDOM SAMPLING OF MATERIAL BEING DELIVERED TO THE SITE WILL BE TESTED, AND THE CONTRACTOR WILL BE RESPONSIBLE TO REPLACE ALL MATERIAL THAT DOES NOT CONFORM TO THE ORIGINAL APPROVED SOIL SAMPLES AT HIS COST.

1. SUBMIT 0.5 GALLON SAMPLE OF SOIL TO TESTING LABORATORY AND INDICATE PRESENT USE, INTENDED USE, TYPE OF SUBSOIL AND QUALITY OF DRAINAGE. PREPARE AND SHIP SAMPLE IN ACCORDANCE WITH TESTING LABORATORY REQUIREMENTS.

2. SUBMIT TWO COPIES OF SOIL ANALYSIS AND RECOMMENDATIONS FOR CORRECTION TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO DELIVERING ANY TOPSOIL TO THE SITE.

3. MAKE INITIAL TEXTURAL AMENDMENTS AND ALL FERTILITY AMENDMENTS TO IMPORTED SOIL MIXTURE IN ACCORDANCE WITH SOIL ANALYSIS RESULTS FOR A PERIOD UP TO AND INCLUDING THE MAINTENANCE PERIOD.

1.03 SCHEDULING OF WORK:

A. SCHEDULE PLACING OF SOIL AND FINISH GRADING TO PERMIT PLANTING OPERATIONS UNDER OPTIMUM CONDITIONS. COORDINATE OPERATIONS WITH IRRIGATION CONTRACTOR WHO WILL INSTALL AN AUTOMATIC IRRIGATION SYSTEM PRIOR TO THE INSTALLATION OF TOPSOIL AND PRIOR TO INSTALLATION OF THE PLANT MATERIAL.

PART 2 - PRODUCTS

2.01 MATERIAL TOLERANCES:

A. CONTRACTOR IS TO PROVIDE TOPSOIL MIX THAT CONFORMS TO THE FOLLOWING TOLERANCES.

B. TOPSOIL FOR ALL TREE, SHRUB, AND GROUND COVER PLANTING BEDS SHALL CONSIST OF THE FOLLOWING:

1. 60% TO 70% SAND
2. 10% MAX. SILT.
3. 10% MAX. CLAY.
4. MINIMUM 12% ORGANIC MATTER
5. PH VALUE OF 5.0 TO 6.0.
6. DRAINAGE MINIMUM OF 3/4 INCH/HR.

C. ACCEPTABLE AMENDMENTS INCLUDE:

1. COMPOSTED ORGANIC WOOD AND MANURE BASED PRODUCT WITH A CARBON TO NITROGEN RATIO BETWEEN 15:1 AND 30:1, WITH A PH OF 5 TO 6, SALT CONTENT BELOW 6 MMHOS/CM. OTHER MATERIALS SUCH AS MUSHROOM COMPOST, ETC. MAY BE CONSIDERED FOR APPROVAL.
2. AMENDMENTS SHALL BE FREE OF OBJECTIONABLE ODOR, AND FREE FROM ALL VIABLE WEED SEEDS, FINELY SHREDDED TO PASS 70% THROUGH A 1/4 INCH MESH SCREEN.

D. TOPSOIL FOR ALL LAWN AND MEADOW AREAS SHALL CONSIST OF THE FOLLOWING:

1. 60% TO 80% ROUND SAND.
2. 10% MAX. SILT.

3. 10% MAX. CLAY.
4. MINIMUM 5% ORGANIC MATTER
5. PH VALUE OF 6.0 TO 7.5.
6. DRAINAGE MINIMUM OF 3/4 INCH/HR.

E. SAND:

1. RIVER PUMP OR SCREENED QUARRY SAND WITH A PARTICLE SIZE BREAKDOWN AS FOLLOWS. PROVIDE SIEVE ANALYSIS FOR APPROVAL.

COARSE SAND15%MEDIUM SAND65%FINE SAND20%  
F. COMPOST:

1. WELL-DECOMPOSED, 2 YEAR OLD, ORGANIC WOOD AND MANURE BASED PRODUCT WITH A CARBON TO NITROGEN RATIO BETWEEN 15:1 AND 30:1, WITH A PH OF 5 TO 6, AND A SALT CONTENT BELOW 6 MMHOS/CM. OTHER MATERIALS SUCH AS A DECOMPOSED MUSHROOM OR VEGETABLE MATTER OF NATURAL OCCURRENCE MAY BE CONSIDERED FOR APPROVAL. SHEEP AND PEAT IS ACCEPTABLE.
2. SHREDDED PARTICLE MINIMUM SIZE: 1/4 - 1/2 INCH.

G.FERTILIZER:

1. ANALYSIS AND APPLICATION RATES IN ACCORDANCE WITH SOIL ANALYSIS RESULTS - SLOW RELEASE TYPE SULPHUR COATED UREA COMPLETE WITH MICRO NUTRIENTS.

H.PEAT MOSS: (MOUNTAIN PEAT MOSS IS NOT ACCEPTABLE FOR USE ON THE PROJECT)

1. DERIVED FROM PARTIALLY DECOMPOSED FIBROUS OR CELLULAR STEMS AND LEAVES OF SPECIES OF SPHAGNUM MOSSES.
2. ELASTIC AND HOMOGENOUS, BROWN IN COLOR.
3. FREE OF WOOD AND DELETERIOUS MATERIAL THAT COULD PROHIBIT GROWTH.
4. SHREDDED PARTICLE MINIMUM SIZE: 1/4".

- I. DRAIN GRAVEL: 3/4" DIAMETER CLEAN ROUND DRAIN ROCK, FREE OF FINES.

PART 3 - EXECUTION

3.01 PREPARATION OF SUBGRADE:

A. GRADE SOIL, ELIMINATING UNEVEN AREAS AND LOW SPOTS, ENSURING POSITIVE DRAINAGE TOWARDS STORM DRAINS. REMOVE SOIL CONTAMINATED WITH TOXIC MATERIALS OR MATERIALS DETRIMENTAL TO GROWTH SUCH AS ASPHALT, CONCRETE AND DEBRIS WHICH HAS CONTAMINATED SUBGRADE SOIL. DISPOSE OF REMOVED MATERIALS LEGALLY OFF OF SITE. IF HAZARDOUS MATERIALS ARE DISCOVERED NOTIFY OWNER IMMEDIATELY.

B. CULTIVATE AREA SUBSOIL THAT IS TO RECEIVE TOPSOIL TO DEPTH OF 12" IN THOSE AREAS WHERE EQUIPMENT USED FOR HAULING AND SPREADING HAS COMPACTED SOIL. NO-TILL DRILL WILL EXECUTE THE SEEDING OF THE SITE. MINIMUM DISTURBANCE IS REQUIRED. ADDITIONAL CULTIVATION OF DISTURBED OR COMPACTED AREAS SHALL BE THE COST OF THE CONTRACTOR.

C. REMOVE SURFACE DEBRIS, ROOTS, VEGETATION BRANCHES AND STONES IN EXCESS OF 4" DIAMETER.

3.02 SPREADING OF SOIL MIXTURE:

A. COORDINATE EFFORTS WITH OTHER TRADES. UNDER NO CIRCUMSTANCES IS THE SOIL MIXTURE TO BE SPREAD IF OTHER TRADES ARE NOT COMPLETED WITH THEIR WORK, WHICH COULD CONTAMINATE OR COMPACT THE INSTALLED SOIL MIXTURE.

B. SPREAD SOIL AFTER LANDSCAPE ARCHITECT HAS INSPECTED AND PROVIDED WRITTEN APPROVAL OF SUBGRADE PREPARATION IN TERMS OF SLOPE, SCARIFICATION AND DEPTHS. DO NOT SPREAD SOIL IN A FROZEN OR SATURATED CONDITION.

C. SPREAD SOIL MIXTURE WITH ADEQUATE MOISTURE IN UNIFORM LAYERS OVER APPROVED SUBGRADE, WHERE PLANTING IS INDICATED.

D. FOR SOIL APPLICATION AROUND TREES SEE SECTION 02900

E. MANUALLY SPREAD SOIL MIXTURE AROUND TREES, SHRUBS AND OBSTACLES.

3.03 FINISH GRADING OF SOIL MIXTURE:

A. GRADE SOIL, ELIMINATING UNEVEN AREAS AND LOW SPOTS, ENSURING POSITIVE DRAINAGE AWAY FROM BUILDINGS AND TOWARDS STORM DRAINAGE SYSTEMS. REMOVE SOIL CONTAMINATED WITH TOXIC MATERIALS. REMOVE SURFACE DEBRIS, ROOTS, VEGETATION, BRANCHES, STONES IN EXCESS OF 2" DIAMETER, AND ALL EXTRANEIOUS MATERIAL. DISPOSE OF REMOVED MATERIALS. ELIMINATE ROUGH SPOTS AND LOW AREAS TO ENSURE POSITIVE DRAINAGE. PREPARE LOOSE FRIABLE BED BY MEANS OF HAND CULTIVATION AND SUBSEQUENT RAKING. FOLLOWING PLANTING, MULCH PLANTED SHRUB BEDS WITH A DEPTH OF 3" GRAVEL MULCH ON LANDSCAPE FABRIC AND RAKE SMOOTH.

END OF SECTION 02923

ADDITIONAL SPECIFICATIONS

THIS PROJECT SHALL ADHERE TO THE SPECIFICATIONS IN THIS PACKAGE AS WELL AS STANDARD SPECIFICATIONS FOR THE CITY OF PUEBLO AND CDOT. SHOULD THERE BE A CONFLICT BETWEEN SPECIFICATIONS, THE MORE STRINGENT SPECIFICATION SHALL BE USED.

I-25/ILEX BRIDGES DESIGN BUILD ARCHITECTURAL REQUIREMENTS

TOPSOIL SPECIFICATIONS

# LANDSCAPE - SPECIFICATIONS