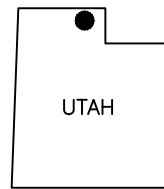


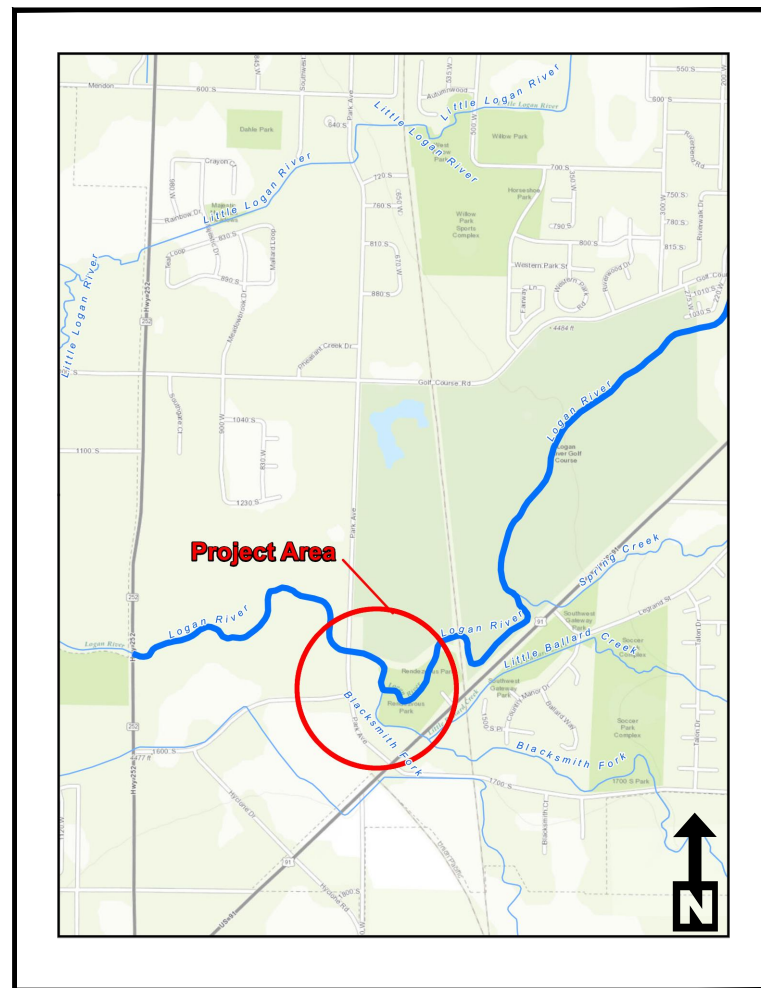
LOGAN RIVER TRAIL

Pedestrian Bridge and Pedestrian Crosswalk

Logan, Utah



GENERAL LOCATION MAP (NTS)



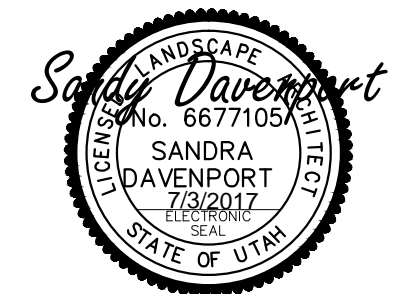
PROJECT LOCATION MAP (NTS)



PROJECT AREA MAP (NTS)

SHEET LISTING

- 1 COVER SHEET
- 2 GENERAL NOTES AND QUANTITIES
- 3 LAYOUT PLAN
- 4 GRADING PLAN
- 5 LANDSCAPE PLAN
- 6 DETAILS
- 7 DETAILS
- 8 DETAILS
- 9 DETAILS
- 10 DETAILS
- 11 DETAILS
- S001 STRUCTURAL NOTES
- S100 PEDESTRIAN BRIDGE



ABBREVIATIONS

APPROX	APPROXIMATE
AVG	AVERAGE
BC	BOTTOM OF CURB
BM	BENCHMARK
BOC	BACK OF CURB
BW	BOTTOM OF WALL
CAL	CALIPER
CL	CENTERLINE
CY	CUBIC YARD
DIA	DIAMETER
EL	ELEVATION
EXIST	EXISTING
FG	FINISH GRADE
HORIZ	HORIZONTAL
HP	HIGH POINT
IN	INCHES
LF	LINEAR FEET
LP	LOW POINT
MAX	MAXIMUM
MIN	MINIMUM
MISC	MISCELLANEOUS
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
REQ'D	REQUIRED
ROW	RIGHT OF WAY
SF	SQUARE FOOT
SHT	SHEET
TC	TOP OF CURB
TW	TOP OF WALL
TYP	TYPICAL
VERT	VERTICAL

GENERAL NOTES

Project Limits

All construction activity shall be confined to the project limits including any staging/stockpile areas. Do not disturb, excavate or work beyond project limits without permission from the Project Manager.

Existing Conditions

Verify all conditions and dimensions on site.

Survey Staking

Survey staking is the responsibility of the Contractor.

Permits

The Contractor is required to comply with all construction related requirements in each permit issued for the project.

Logan City Standards and Specifications

All construction shall be in accordance with the latest revision of City of Logan Standards and Specifications for the design and construction of public improvements.

Utilities

Utility locations have not been surveyed. It is the responsibility of the Contractor to perform all utility locations at least 48 hours prior to excavation, call 1(800)662-4111. It is the responsibility of Contractor to protect all existing sewer, water, gas and electric utilities encountered in the work. Any relocation or improvements of utilities shall be accurately noted on as-built drawings and issued to the Project Manager at the completion of the project.

Temporary Construction Facilities

All temporary utilities and facilities will be the responsibility of the Contractor. A construction trailer is not required. Potable water is not available on site and shall be provided by the Contractor. A chemical toilet of suitable type shall be provided and maintained by the Contractor at all times. The Contractor is responsible for job site conditions and the safety for human life during the course of construction. This requirement shall apply continuously during the period of construction and is not limited to normal working hours.

The Contractor shall keep job site area clean, hazard free and dispose of all debris, rubbish and construction waste, and remove all abandoned materials from the site. All disturbed staging and access areas are to be rehabilitated to pre-construction condition. The Contractor is responsible to reclaim (regrade, seed and mulch) construction features not specified as remaining on the site and clean up all areas at the completion of the project.

Storm Water Pollution Prevention Plan Items

1. No earth shall be disturbed until erosion control measures are in place.
2. Erosion control measures will be maintained and remain in place until re-vegetation measures have been established.
3. Preparation of a Storm Water Pollution Prevention Plan; design, layout, installation, and maintenance of erosion/sediment control BMPs; submittal of NOI; and acquisition of UPDES Storm Water General Permit for Construction Activities (UTR300000) is the responsibility of the Contractor.

4. The Contractor is responsible for implementing and utilizing Best Management Practices (BMPs) to prevent storm water runoff and water pollution during construction activities. The Contractor is responsible for supplying equipment and plans that provide both dust and fire control during project construction. Use caution when working in and around wet areas. If potential hazardous materials are encountered, contact the Project Manager immediately.

Construction Spoils and Waste Handling

Items encountered below grade and not shown on the drawings shall be brought to the attention of the Project Manager. All construction spoils and waste are the responsibility of the Contractor and shall be disposed of at an approved landfill facility.

Clearing and Grubbing

Existing on-site materials shall be carefully removed and stored for re-use, or disposed of at an approved landfill facility. All existing vegetation not in designated excavation areas and not designated for removal is to be protected in place. Completely remove stumps, roots, shrubs, weeds, and other debris protruding from the ground in areas to be excavated.

Site Earthwork and Grading

The Contractor is responsible for all site earthwork and grading activities to meet designs identified in plans and details, which are intended to show final result of design. Modifications may be required to suit job site conditions encountered during construction and shall be included in as-built drawings provided to the Project Manager at completion of project.

All river channel banks affected by construction activities shall be stabilized and protected throughout construction.

Backfill material shall utilize suitable excavated soils or suitable imported material.

Existing Topsoil shall be excavated and salvaged by Contractor for use in landscaping and backfill activities. Topsoils used in landscaping shall have acidity range (pH) from 5.5 to 7.5 and a minimum organic content of 2%. Topsoil shall be placed at 80% to 90% maximum dry density and subsoil at 85% minimum compaction as determined by the Standard Proctor Method (ASTM D0698-66T or AASHTO T99). All existing topsoils shall be salvaged to the extent possible.

Site Construction Notes

1. All seeding and planting activities shall occur during the designated seeding and planting window from September 15 to December 1 unless in areas with irrigation or as otherwise authorized by the Project Manager.
2. Where ground conditions are damp and equipment traffic would result in excessive ground compaction and rutting, use construction mats to access active work areas.
3. Inspect paved roads and walkways adjacent to the project site regularly for mud tracking; sweep roadways as needed and ensure roads are left clean at the end of each shift.
4. Clean site and dispose of construction waste as permitted.



LOGAN RIVER TRAIL

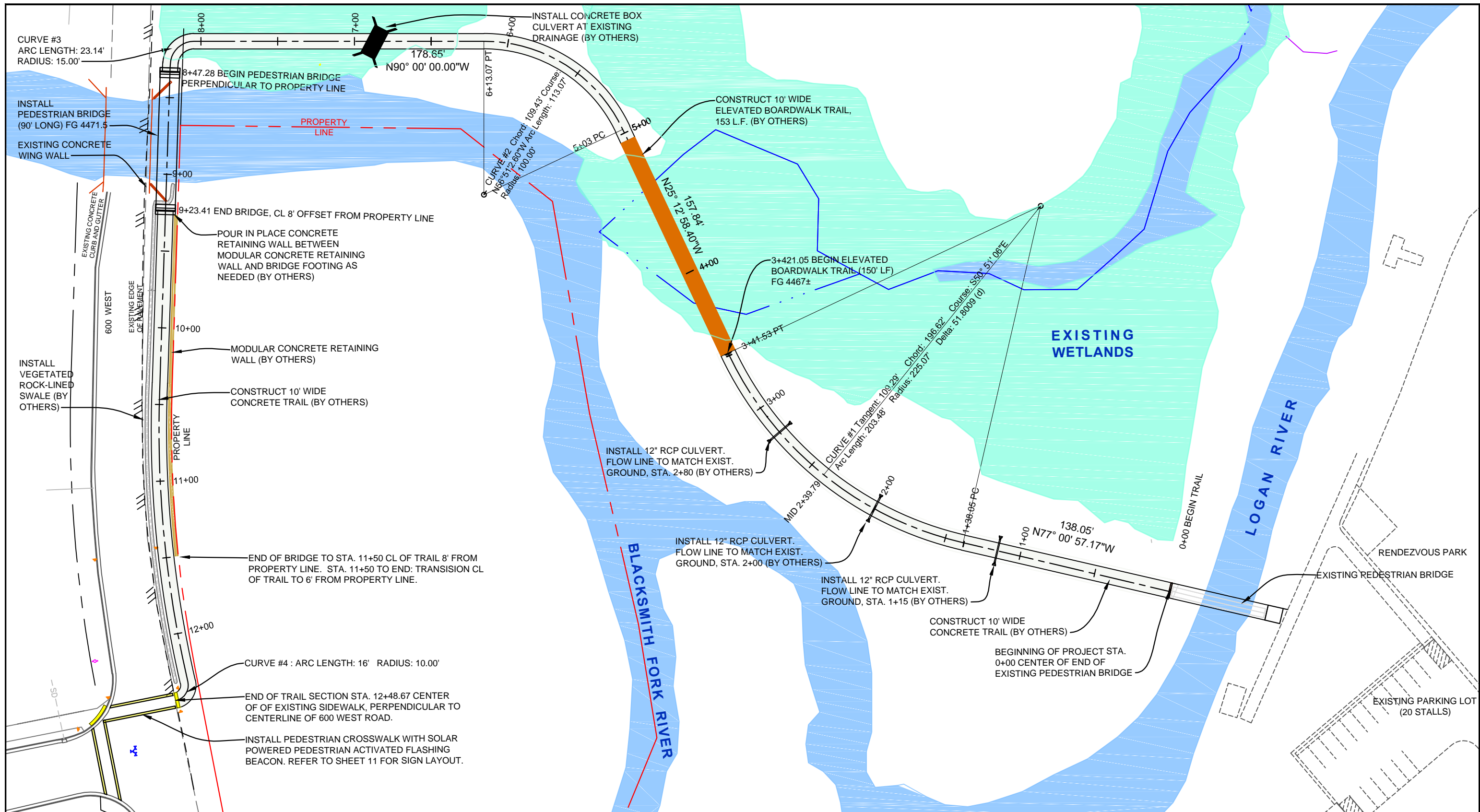
Pedestrian Bridge and Pedestrian Crosswalk

Logan, Utah

Sheet Title:
GENERAL NOTES

Date:
07/03/2017
Designed By: C.S.
Drawn By: S.D.
BIO-WEST PN:
#1945.5
Sheet No.

2



LOGAN RIVER TRAIL

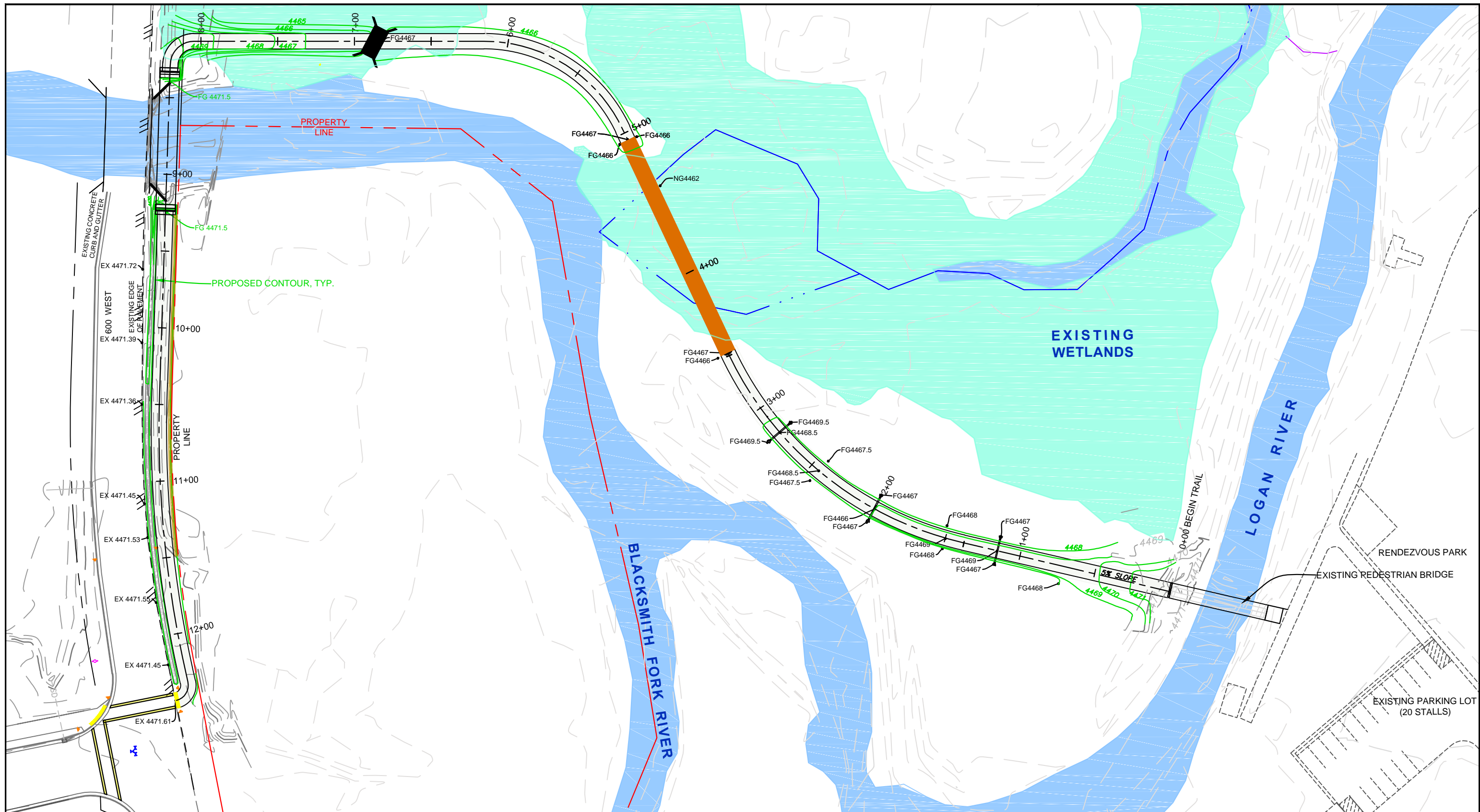
Pedestrian Bridge and Pedestrian Crosswalk Logan, Utah

Sheet Title:
LAYOUT PLAN



Date:
07/03/2017
Designed By: C.S.
Drawn By: S.D.
BIO-WEST PN:
#1945.5
Sheet No.

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LOGAN RIVER TRAIL

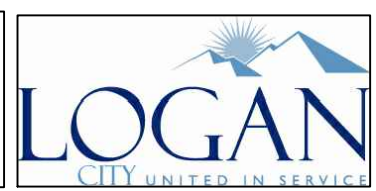
Pedestrian Bridge and Pedestrian Crosswalk Logan, Utah

Sheet Title:
**GRADING PLAN
(BY OTHERS)**

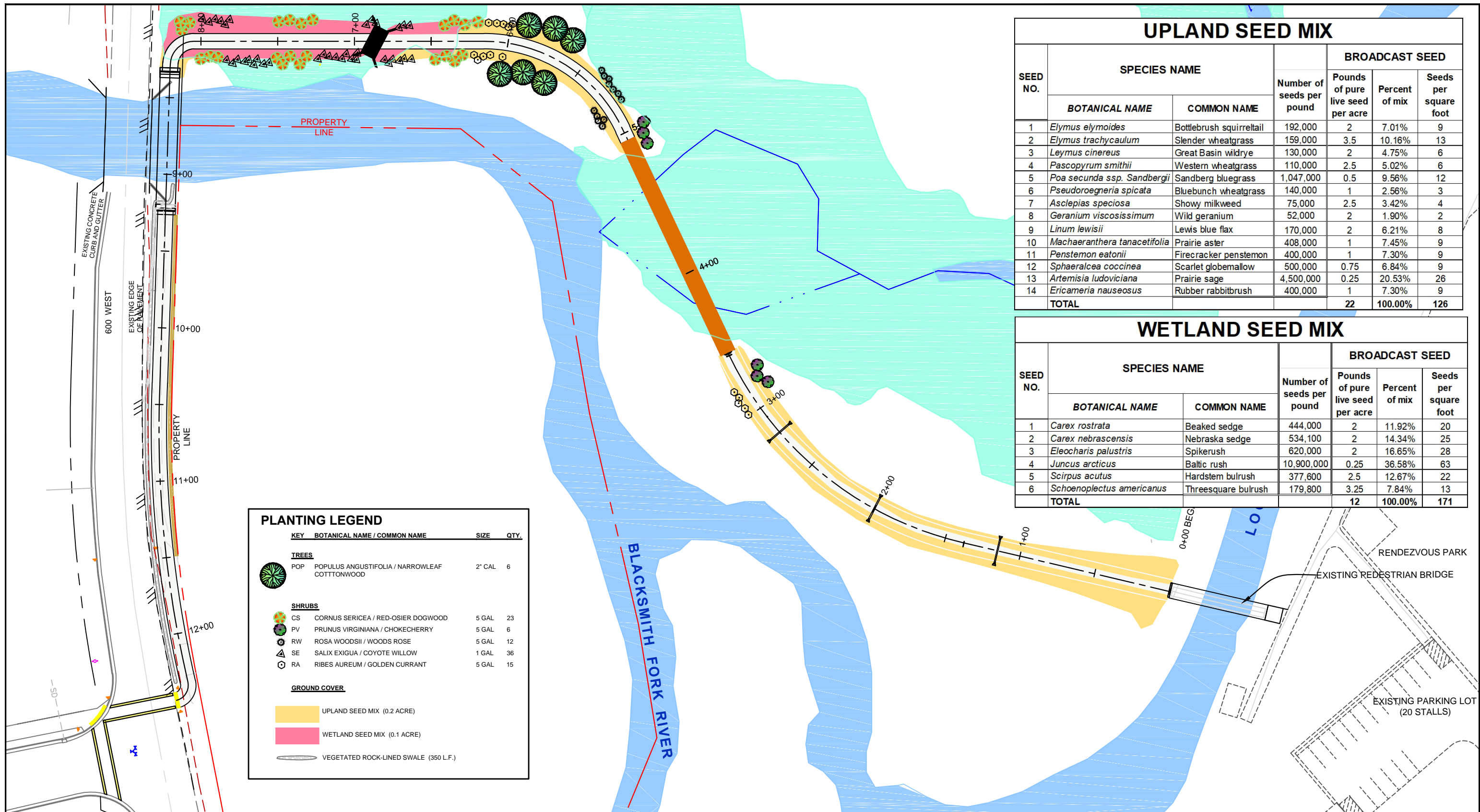


Date:
07/03/2017
Designed By: C.S.
Drawn By: S.D.
BIO-WEST PN:
#1945.5
Sheet No.

4



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UPLAND SEED MIX						
SEED NO.	SPECIES NAME		Number of seeds per pound	BROADCAST SEED		
	BOTANICAL NAME	COMMON NAME		Pounds of pure live seed per acre	Percent of mix	Seeds per square foot
1	<i>Elymus elymoides</i>	Bottlebrush squirreltail	192,000	2	7.01%	9
2	<i>Elymus trachycaulum</i>	Slender wheatgrass	159,000	3.5	10.16%	13
3	<i>Leymus cinereus</i>	Great Basin wildrye	130,000	2	4.75%	6
4	<i>Pascopyrum smithii</i>	Western wheatgrass	110,000	2.5	5.02%	6
5	<i>Poa secunda ssp. Sandbergii</i>	Sandberg bluegrass	1,047,000	0.5	9.56%	12
6	<i>Pseudoroegneria spicata</i>	Bluebunch wheatgrass	140,000	1	2.56%	3
7	<i>Asclepias speciosa</i>	Showy milkweed	75,000	2.5	3.42%	4
8	<i>Geranium viscosissimum</i>	Wild geranium	52,000	2	1.90%	2
9	<i>Linum lewisii</i>	Lewis blue flax	170,000	2	6.21%	8
10	<i>Machaeranthera tanacetifolia</i>	Prairie aster	408,000	1	7.45%	9
11	<i>Penstemon eatonii</i>	Firecracker penstemon	400,000	1	7.30%	9
12	<i>Sphaeralcea coccinea</i>	Scarlet globemallow	500,000	0.75	6.84%	9
13	<i>Artemisia ludoviciana</i>	Prairie sage	4,500,000	0.25	20.53%	26
14	<i>Ericameria nauseosus</i>	Rubber rabbitbrush	400,000	1	7.30%	9
TOTAL				22	100.00%	126

WETLAND SEED MIX						
SEED NO.	SPECIES NAME		Number of seeds per pound	BROADCAST SEED		
	BOTANICAL NAME	COMMON NAME		Pounds of pure live seed per acre	Percent of mix	Seeds per square foot
1	<i>Carex rostrata</i>	Beaked sedge	444,000	2	11.92%	20
2	<i>Carex nebrascensis</i>	Nebraska sedge	534,100	2	14.34%	25
3	<i>Eleocharis palustris</i>	Spikerush	620,000	2	16.65%	28
4	<i>Juncus arcticus</i>	Baltic rush	10,900,000	0.25	36.58%	63
5	<i>Scirpus acutus</i>	Hardstem bulrush	377,600	2.5	12.67%	22
6	<i>Schoenoplectus americanus</i>	Threesquare bulrush	179,800	3.25	7.84%	13
TOTAL				12	100.00%	171

PLANTING LEGEND			
KEY	BOTANICAL NAME / COMMON NAME	SIZE	QTY.
TREES			
POP	POPULUS ANGUSTIFOLIA / NARROWLEAF COTTONWOOD	2" CAL	6
SHRUBS			
CS	CORNUS SERICEA / RED-OSIER DOGWOOD	5 GAL	23
PV	PRUNUS VIRGINIANA / CHOKECHERRY	5 GAL	6
RW	ROSA WOODSII / WOODS ROSE	5 GAL	12
SE	SALIX EXIGUA / COYOTE WILLOW	1 GAL	36
RA	RIBES AUREUM / GOLDEN CURRANT	5 GAL	15
GROUND COVER			
[Yellow Box]	UPLAND SEED MIX (0.2 ACRE)		
[Pink Box]	WETLAND SEED MIX (0.1 ACRE)		
[Line]	VEGETATED ROCK-LINED SWALE (350 L.F.)		



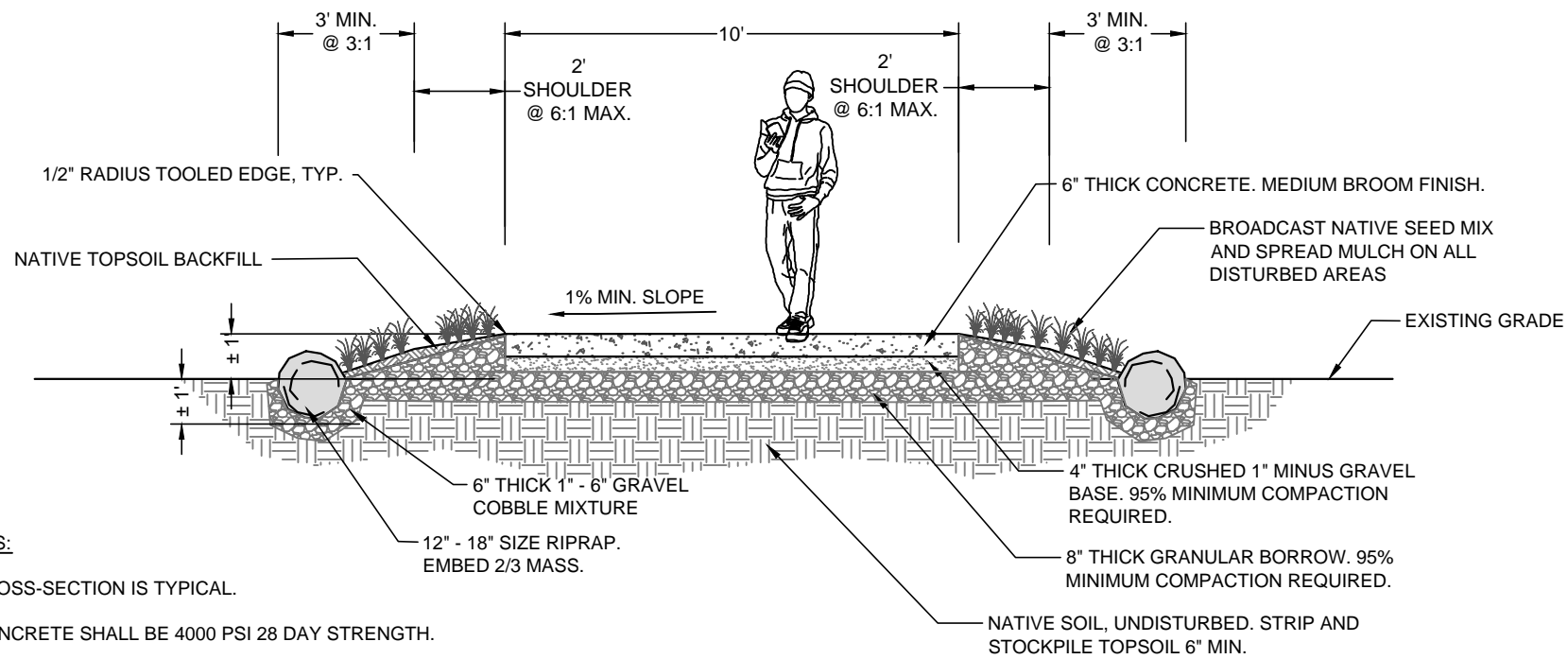
LOGAN RIVER TRAIL

Pedestrian Bridge and Pedestrian Crosswalk Logan, Utah

Sheet Title:
**LANDSCAPE PLAN
(BY OTHERS)**

Date: 07/03/2017
Designed By: C.S.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. **5**

0 30 60 Feet

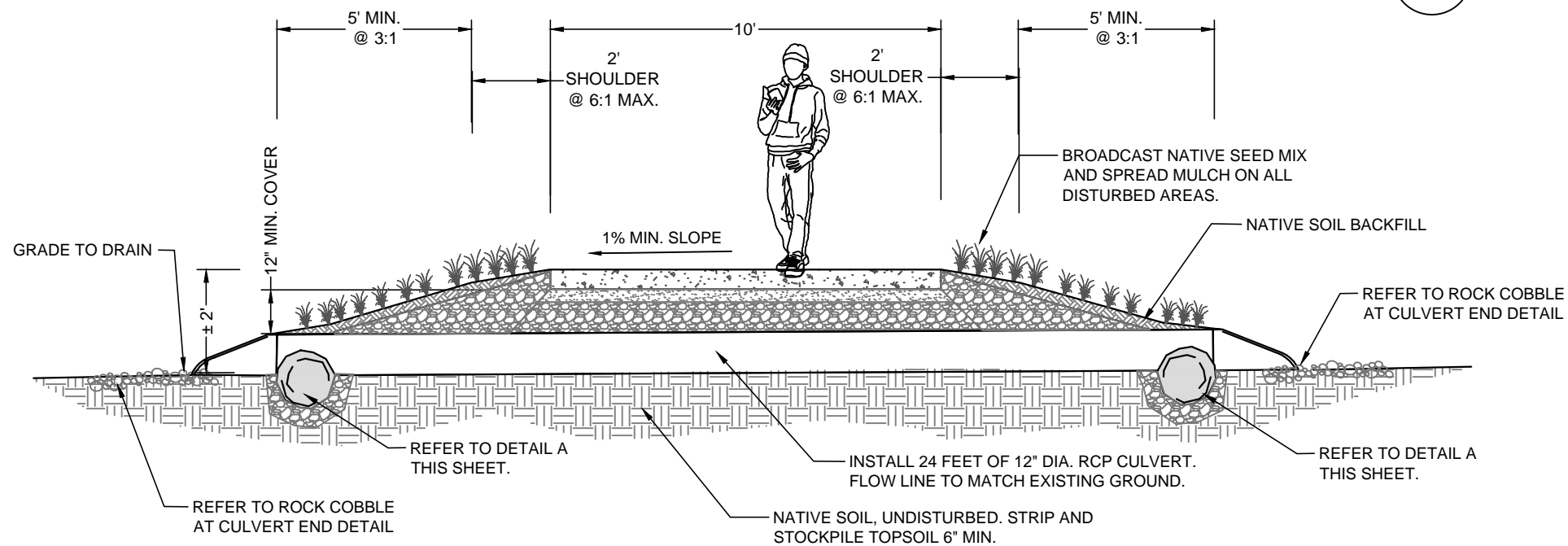


- NOTES:**
- CROSS-SECTION IS TYPICAL.
 - CONCRETE SHALL BE 4000 PSI 28 DAY STRENGTH.
 - SEE PLANTING PLAN FOR NATIVE SEED MIX.
 - PROVIDE CONCRETE JOINTING PER CURRENT LOGAN CITY APWA STANDARDS.

10' WIDE CONCRETE TRAIL: STA 0+00 TO 3+42 & STA 4+95 TO 8+47.28 (BY OTHERS)

1" = 4'-0"

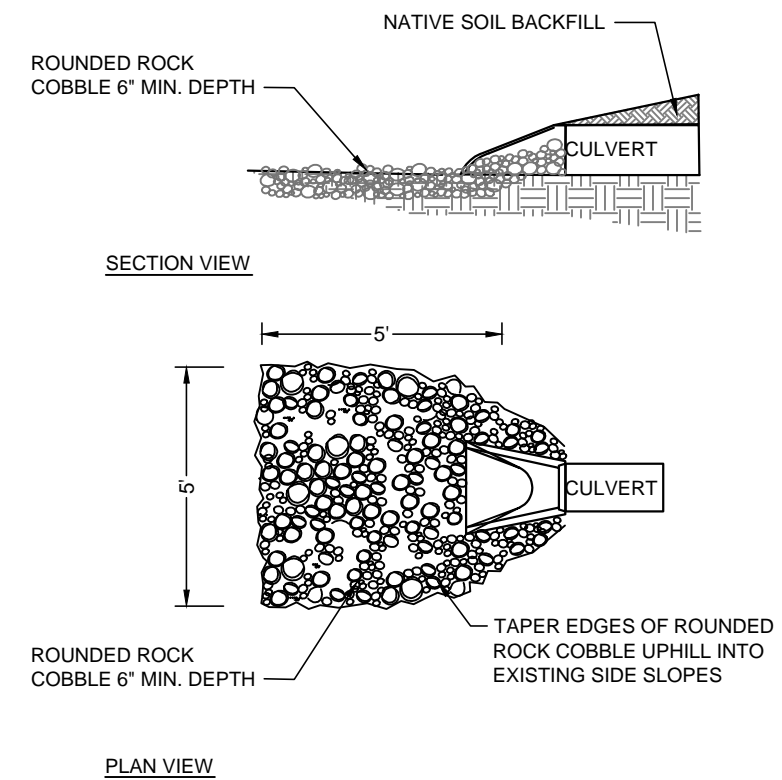
A



12" RCP CULVERT : STA 1+15, STA 2+00, STA 2+80 (BY OTHERS)

1" = 4'-0"

B



ROCK COBBLE AT CULVERT END (BY OTHERS)

1" = 4'-0"

C

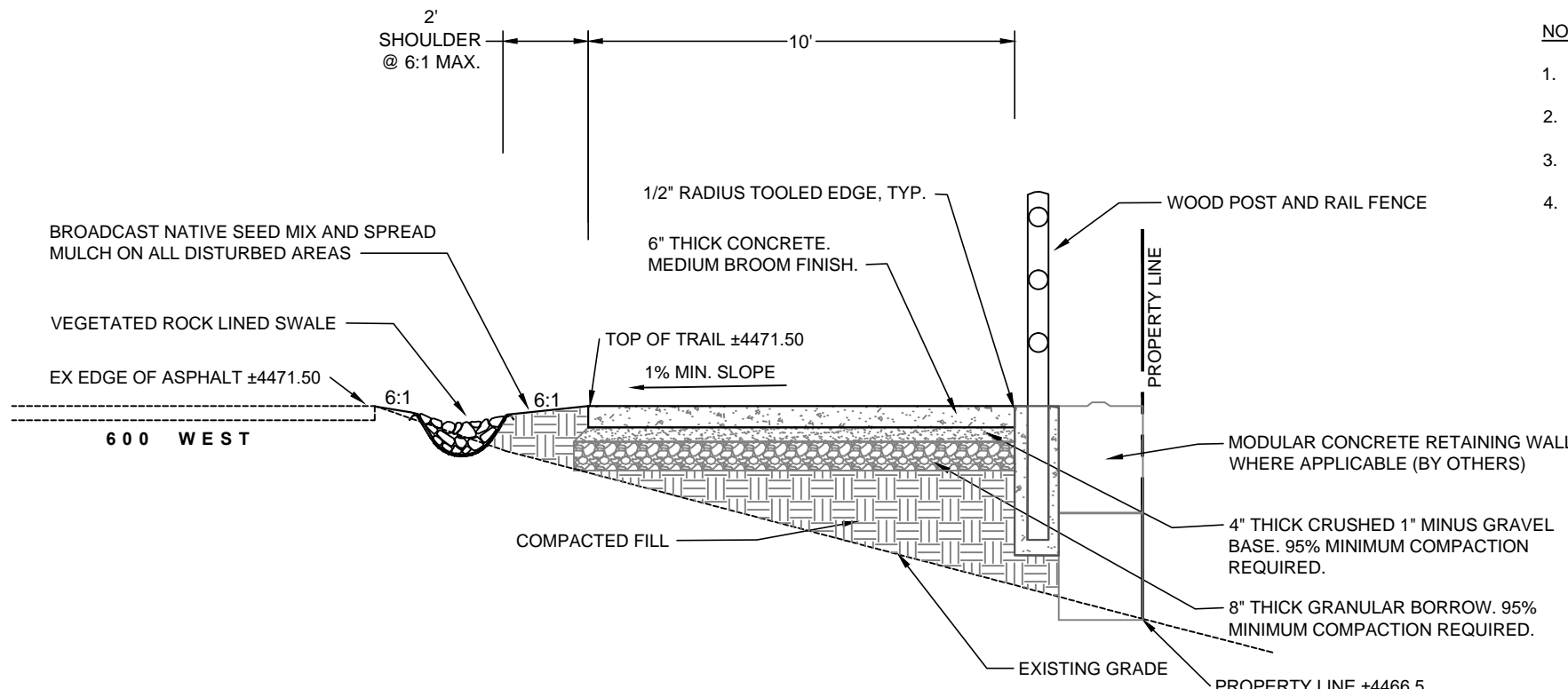


LOGAN RIVER TRAIL
Pedestrian Bridge and Pedestrian Crosswalk
Logan, Utah

Sheet Title:
DETAILS

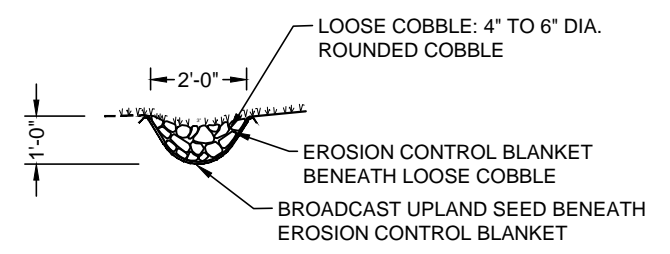
Date:
 07/03/2017
 Designed By: C.S.
 Drawn By: S.D.
 BIO-WEST PN:
 #1945.5
 Sheet No.

6



NOTES:

1. CROSS-SECTION IS TYPICAL.
2. CONCRETE SHALL BE 4000 PSI 28 DAY STRENGTH.
3. SEE PLANTING PLAN FOR NATIVE SEED MIX.
4. PROVIDE CONCRETE JOINTING PER CURRENT LOGAN CITY APWA STANDARDS.



SECTION VIEW

10' WIDE CONCRETE TRAIL STA 9+23.41 TO 12+48.67 (BY OTHERS)

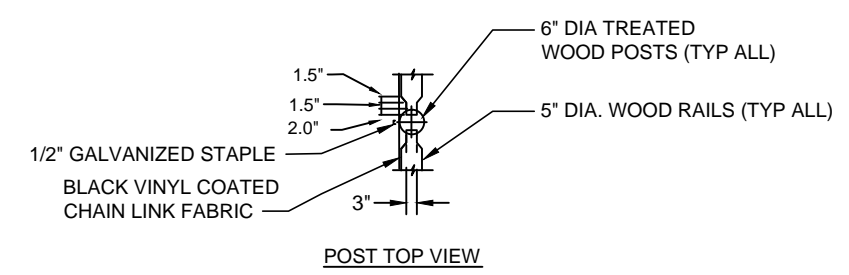
1" = 4'-0"

A

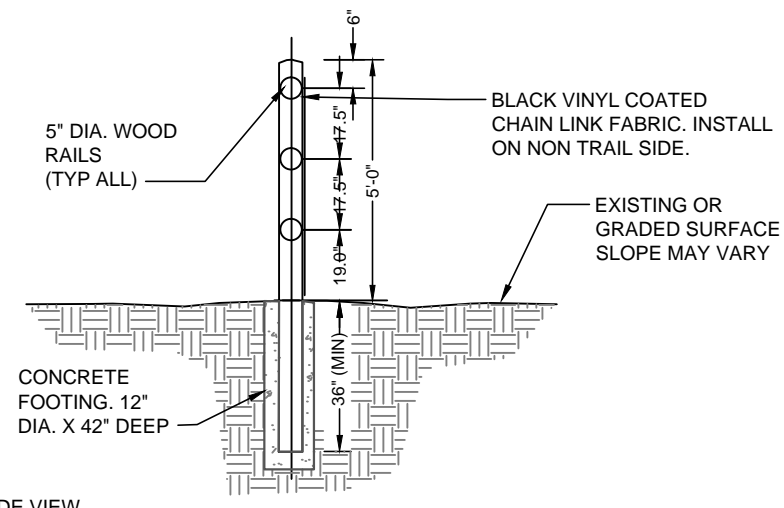
VEGETATED ROCK-LINED SWALE (BY OTHERS)

N.T.S.

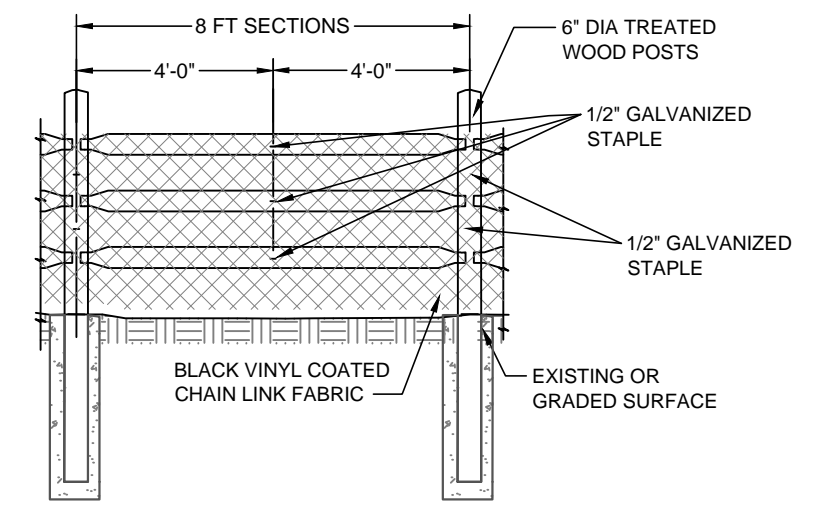
B



POST TOP VIEW



POST SIDE VIEW



ELEVATION VIEW

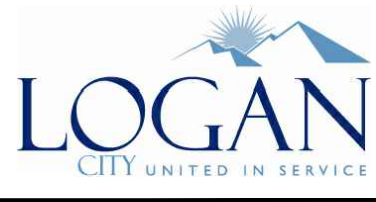
NOTES:

1. ALL DIMENSIONS FOR RAIL SPACING AND CONNECTIONS TO POSTS ARE SUBJECT TO CHANGE AS PER MANUFACTURERS PRE-FABRICATED MATERIALS.
2. MAINTAIN MINIMUM 5 FEET HEIGHT OF FENCE.

WOOD POST AND RAIL FENCE (BY OTHERS)

1" = 4'-0"

C

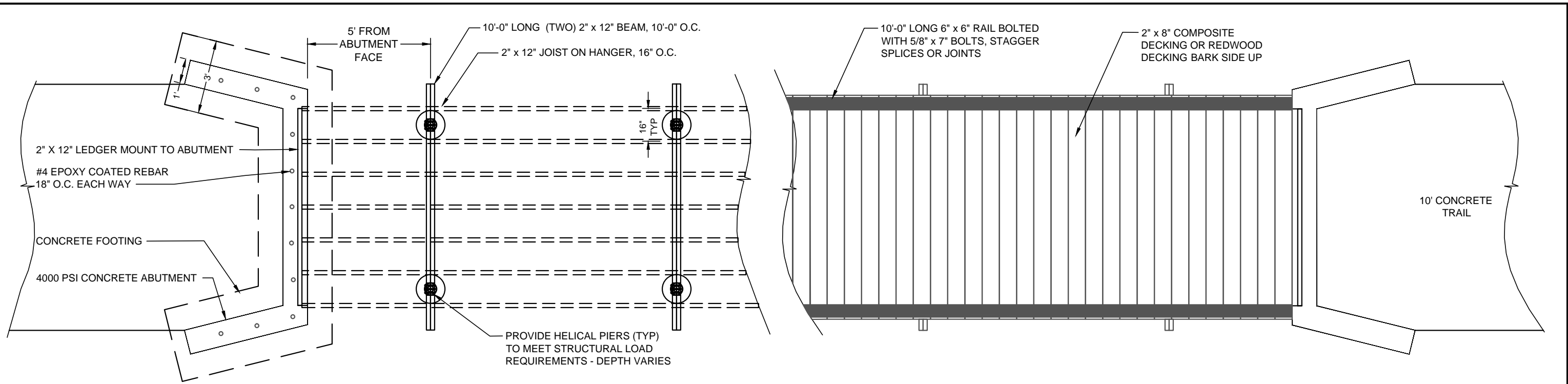


LOGAN RIVER TRAIL
Pedestrian Bridge and Pedestrian Crosswalk
Logan, Utah

Sheet Title:
DETAILS

Date: 07/03/2017
 Designed By: C.S.
 Drawn By: S.D.
 BIO-WEST PN: #1945.5
 Sheet No.

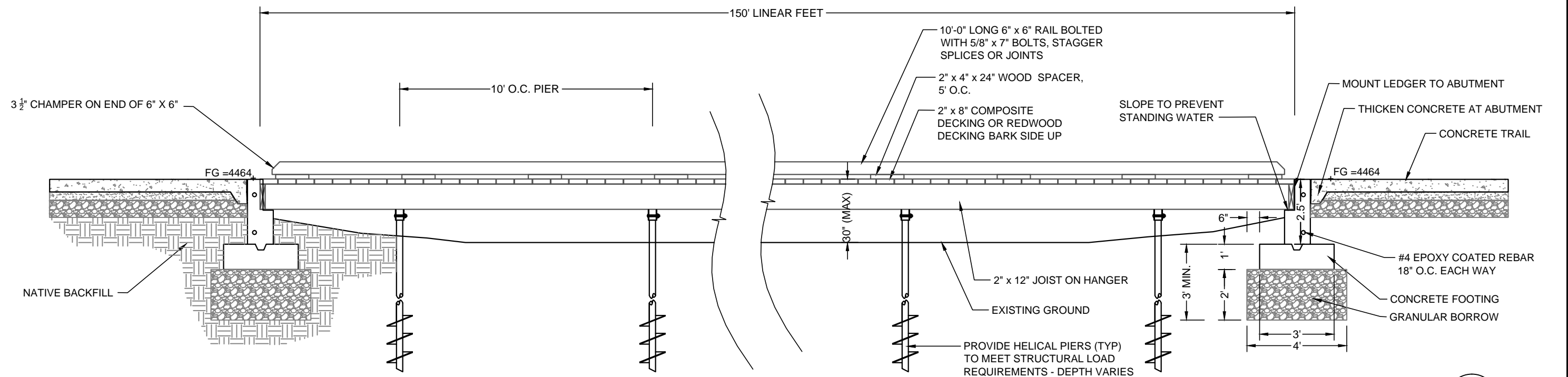
7



ELEVATED BOARDWALK JOIST FRAMING PLAN \ PLAN VIEW (BY OTHERS)

1" = 4'-0"

A



ELEVATED BOARDWALK PROFILE (BY OTHERS)

1" = 4'-0"

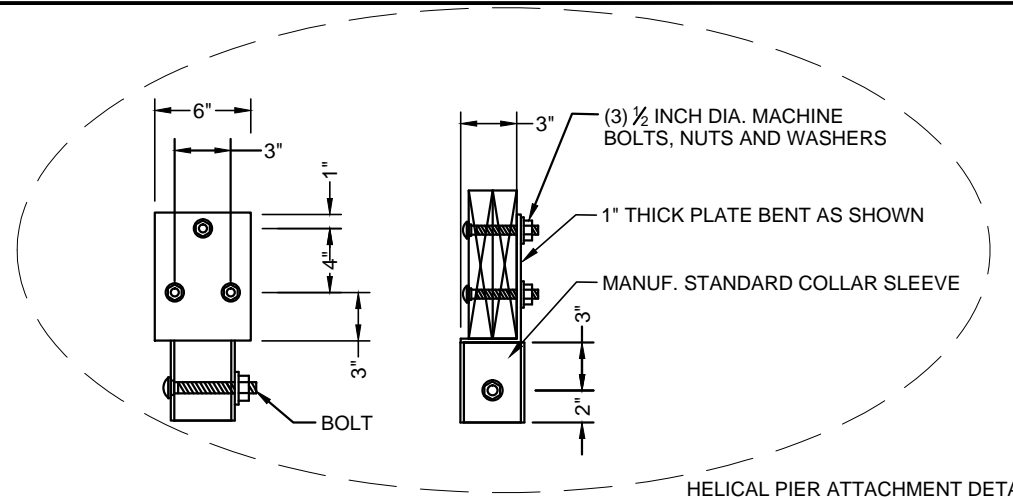
B



LOGAN RIVER TRAIL
Pedestrian Bridge and Pedestrian Crosswalk
Logan, Utah

Sheet Title:
DETAILS

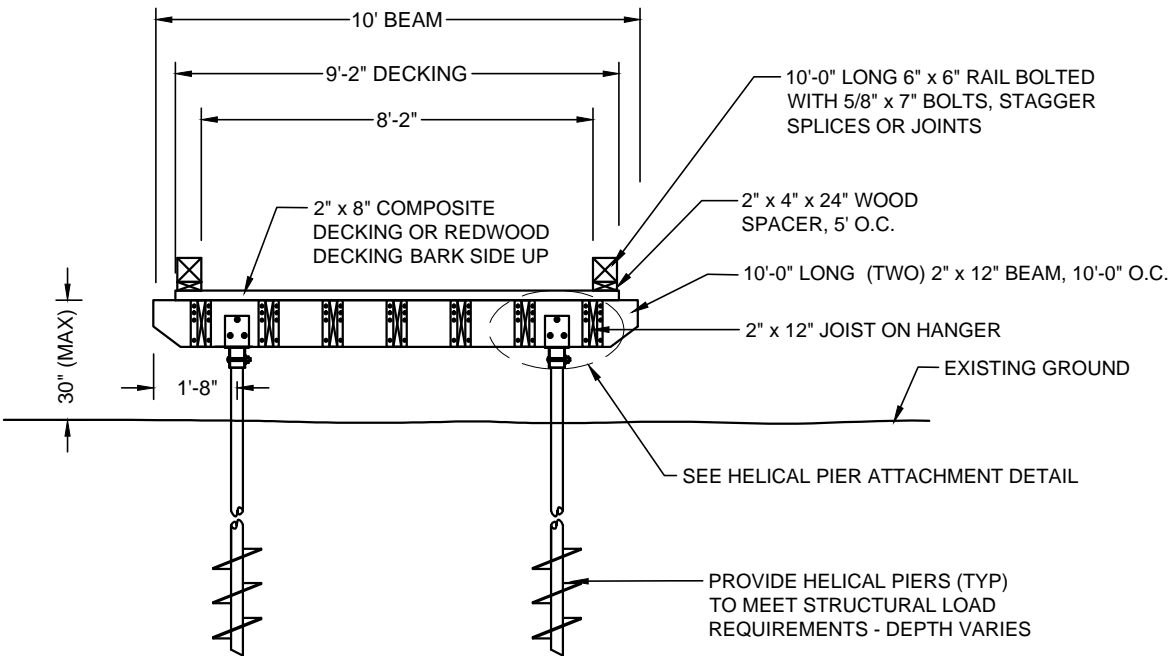
Date: 07/03/2017
 Designed By: C.S.
 Drawn By: S.D.
 BIO-WEST PN: #1945.5
 Sheet No. **8**



HELICAL PIER ATTACHMENT DETAIL

ELEVATED BOARDWALK NOTES:

1. PRE-DRILL HOLES TO PREVENT SPLITTING DURING CONSTRUCTION. ATTACH DECKING USING GALVANIZED SECURITY SCREWS & HARDWARE (ALL WOODEN / COMPOSITE MEMBERS SHALL BE BOLTED OR SCREWED TOGETHER. NO NAIL CONNECTIONS).
2. USE ONLY GALVANIZED HARDWARE.
3. THE CONTRACTOR SHALL PROVIDE A GEOTECHNICAL REPORT INDICATING THE SITE SOIL PROPERTIES THAT CAN SUPPORT HELICAL PIER LOADS PRIOR TO BEGINNING CONSTRUCTION.
4. ALL WOOD MEMBERS OR ELEMENTS ARE TO BE PRESSURE TREATED NO. 2 GRADE DOUGLAS-FIR OR LARCH AS PER APWA STANDARDS EXCEPT FOR THE BOARDWALK DECKING WHICH IS TO BE DECK HEART GRADE REDWOOD OR COMPOSITE MATERIAL.



SECTION VIEW

ELEVATED BOARDWALK SECTION (BY OTHERS)

1" = 4'-0"

A

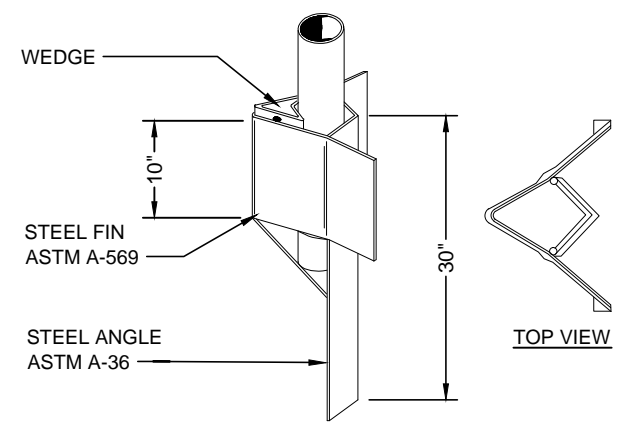
SIGN PANEL TO POST DIRECT CONNECTION WITH PREPUNCHED POST	
ASSEMBLY	BOLT & WASHER REQUIREMENTS
1. HARDWARE: 3/8" x 3" BOLT 3/8" DIA. HEX HEAD BOLT WITH NUT 3/8" DIA. STEEL FLAT WASHER 3/8" DIA. STEEL LOCK WASHER 3/8" DIA. NYLON WASHER 2. ALL STEEL COMPONENTS WILL BE GALVANIZED EXCEPT AS NOTED.	

POST NOTES:

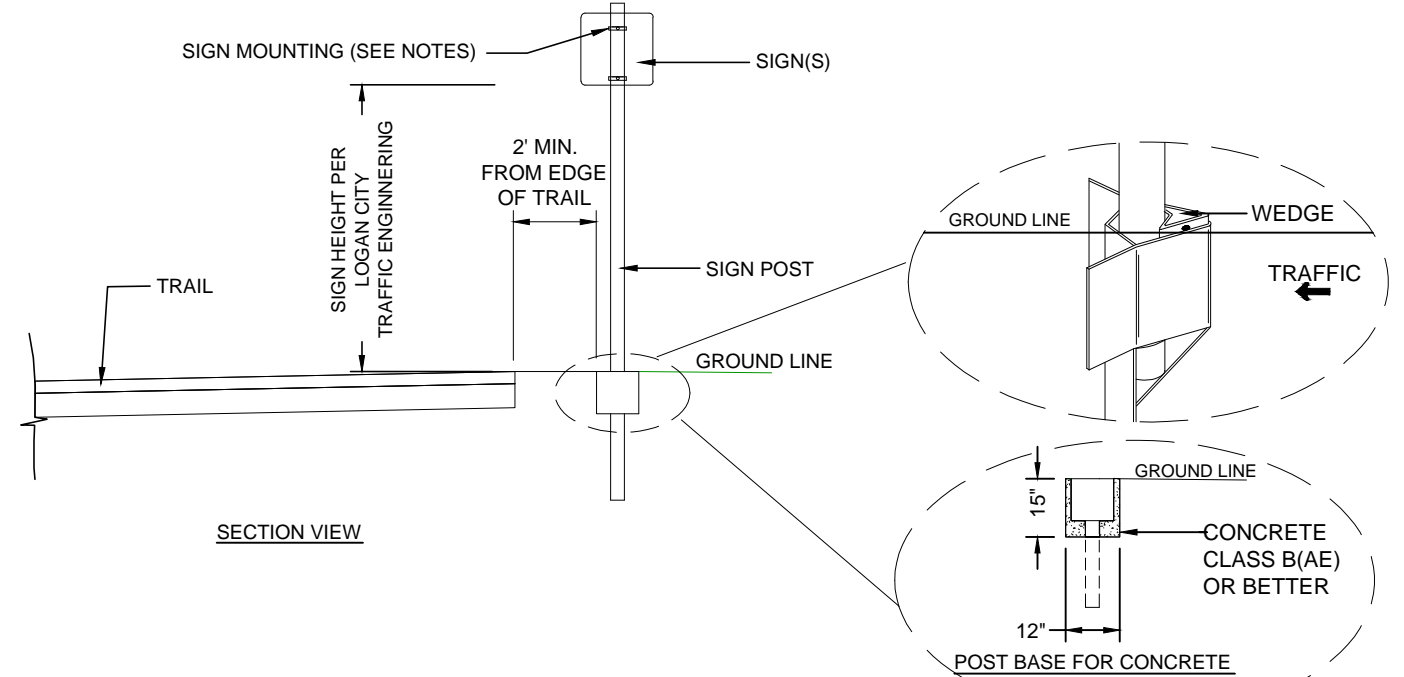
1. POST: ASTM-513 GALVANIZED TO MEET ASTM A-653-G90 (13 GAUGE WALL THICKNESS). 2-3/8" OUTSIDE DIAMETER.
2. POSTS PRE-PUNCHED WITH 3/8" HOLES.
3. MOUNT SIGN DIRECTLY TO POST OR USE AN APPROVED MOUNTING CLAMP.

DRIVE ANCHOR INSTALLATION NOTES:

1. GALVANIZE AFTER FABRICATION.
2. DRIVE POST ANCHOR FLUSH WITH GROUND LINE. ORIENT ANCHOR SO WEDGE INSTALLATION IS TOWARDS OPPOSING TRAFFIC.
3. INSTALL WEDGE WITH 1" MAX EXPOSURE TO TOP OF ANCHOR.



TRIANGULAR STEEL SIGN POST DRIVE ANCHOR



SECTION VIEW

TUBULAR STEEL POST AND BASE DETAIL FOR SIGNS

1" = 4'-0"

B



LOGAN RIVER TRAIL
Pedestrian Bridge and Pedestrian Crosswalk
Logan, Utah

Sheet Title:
DETAILS

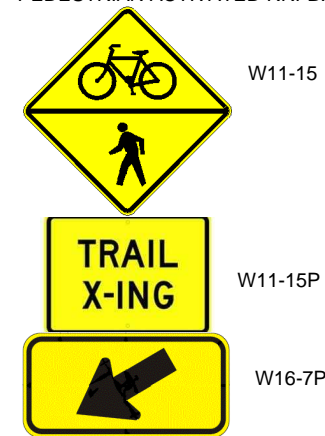
Date:
 07/03/2017
 Designed By: C.S.
 Drawn By: S.D.
 BIO-WEST PN:
 #1945.5
 Sheet No.

9

PEDESTRIAN CROSSING AHEAD SIGN TEXT:



PEDESTRIAN CROSSING SIGN TEXT AT PEDESTRIAN ACTIVATED RRFB:



PEDESTRIAN TRAIL STOP SIGN TEXT:



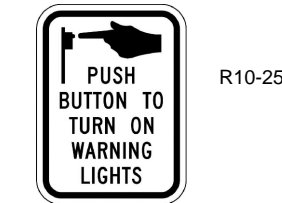
PEDESTRIAN TRAIL STOP AHEAD SIGN TEXT:



PEDESTRIAN TRAIL NO MOTOR VEHICLES TEXT:



PEDESTRIAN PUSH BUTTON STATION SIGN TEXT:

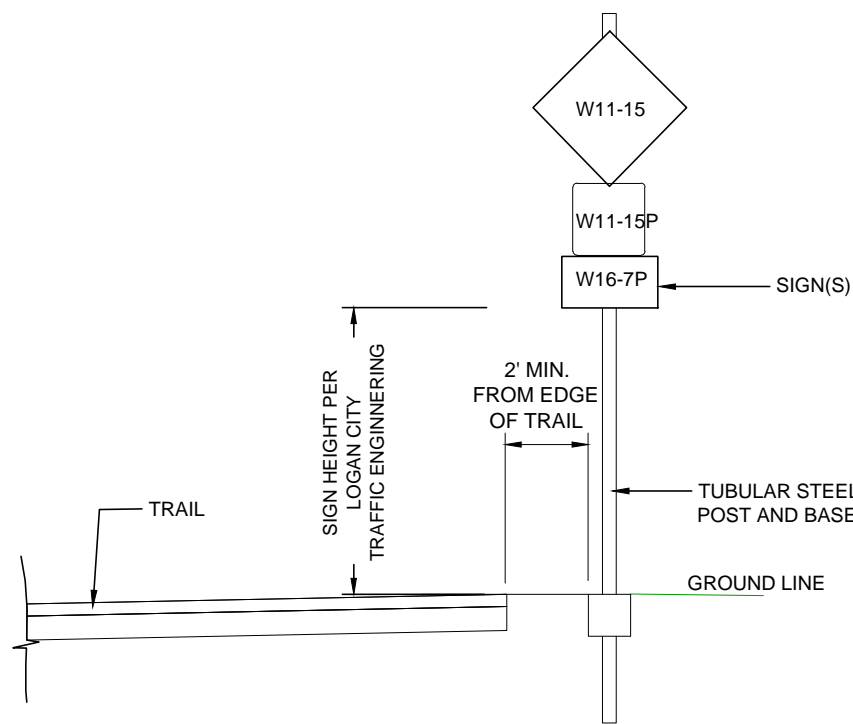


RECTANGULAR RAPID FLASH BEACON (RRFB) NOTES:

1. RECTANGULAR RAPID FLASH BEACON WITH SOLAR ASSISTED BATTERY POWERED SYSTEM AND PUSH BUTTON SYSTEM SHALL BE BY TAPCO TRAFFIC AND PARKING CONTROL CO. INC.

PEDESTRIAN ACTIVATED RRFB NOTES:

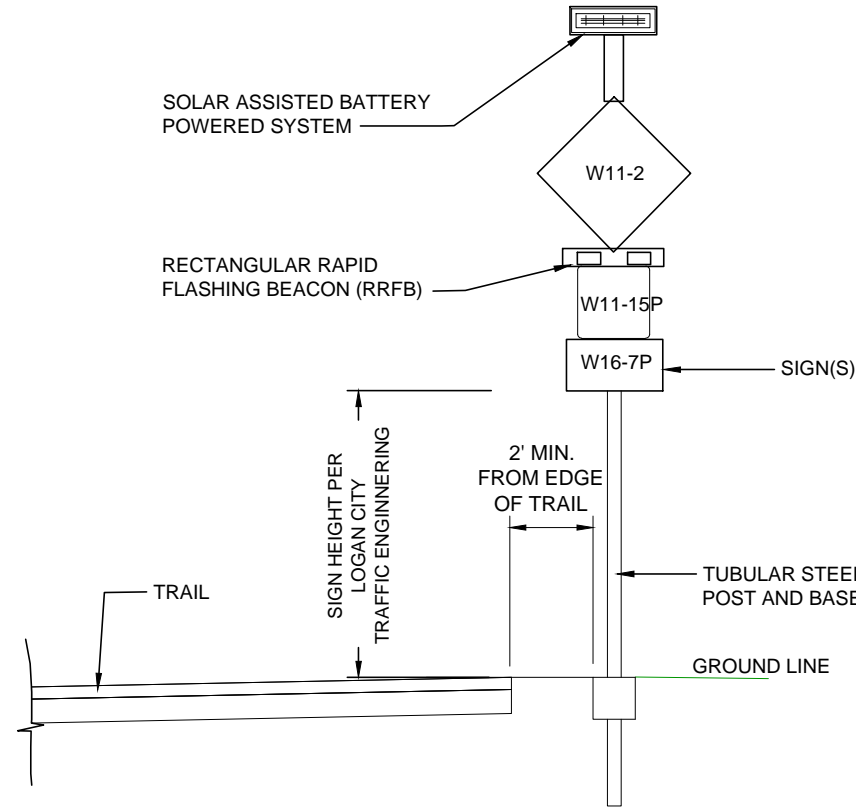
1. PEDESTRIAN PUSH BUTTON SYSTEM SHALL BE BY TAPCO TRAFFIC AND PARKING CONTROL CO. INC.



TRAIL CROSSING AHEAD SIGN

1" = 4'-0"

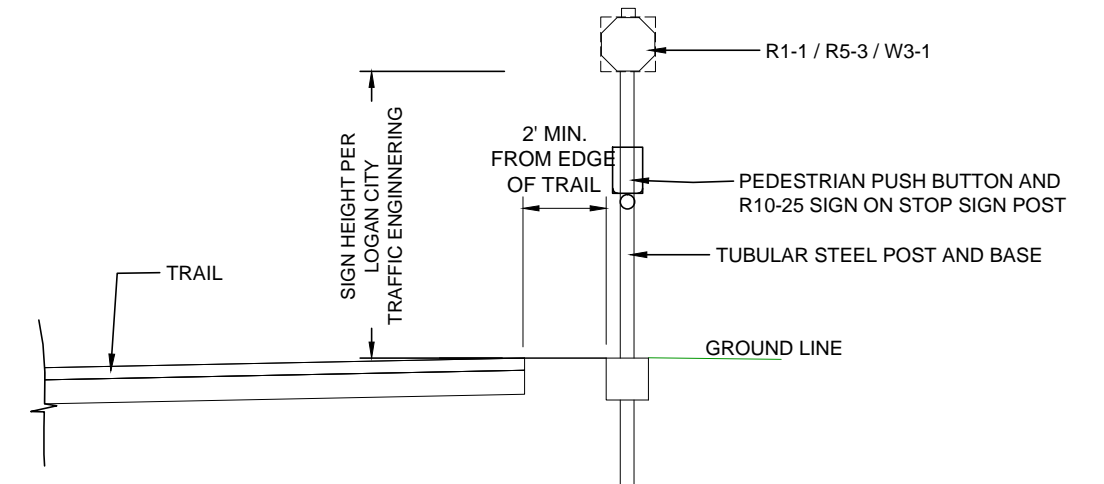
A



TRAIL CROSSING SIGN WITH RECTANGULAR RAPID FLASH BEACON

1" = 4'-0"

B



TRAIL STOP AHEAD SIGN AND TRAIL CROSSING STOP SIGN WITH PEDESTRIAN PUSH BUTTON

1" = 4'-0"

C



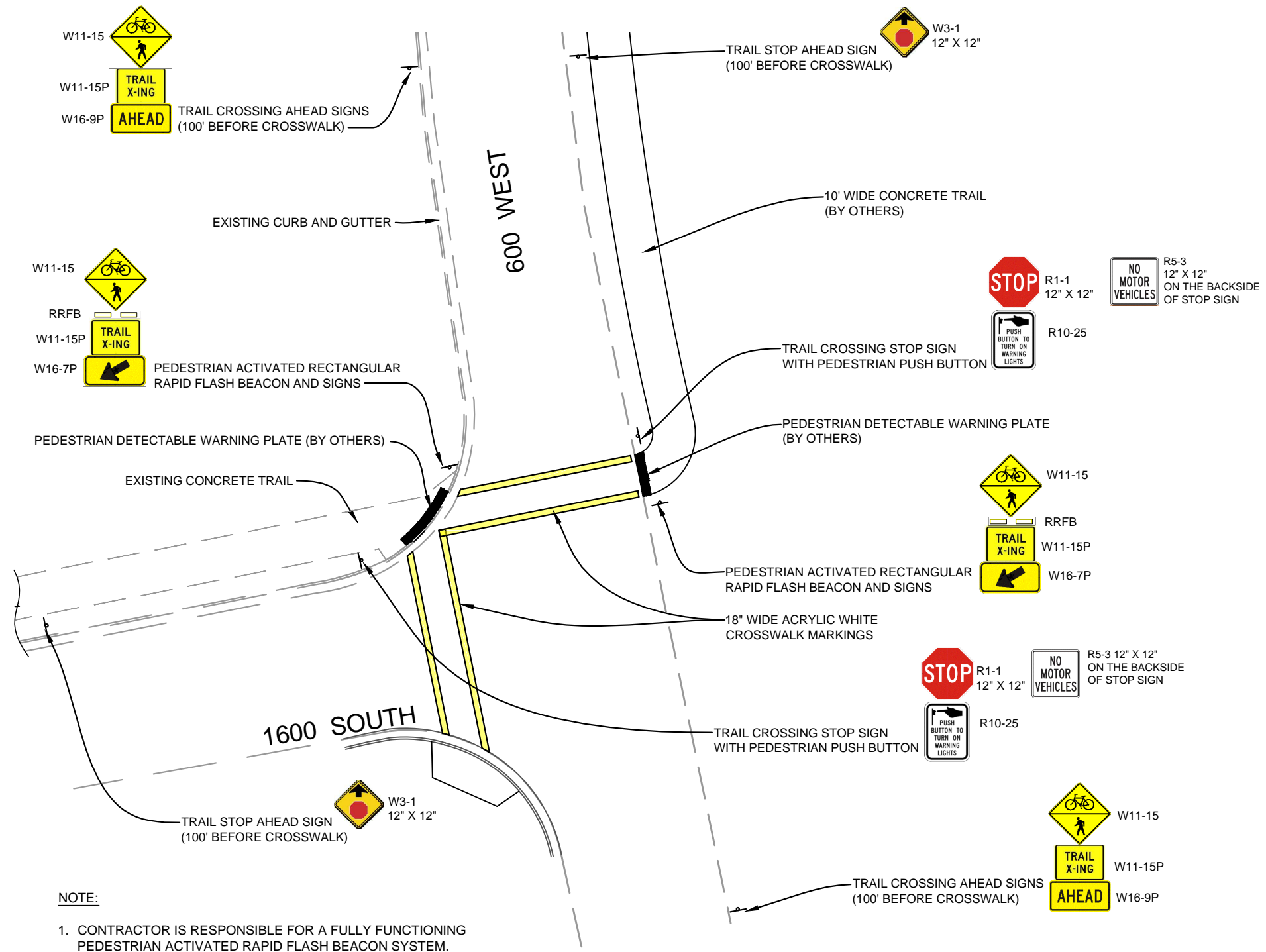
LOGAN RIVER TRAIL

Pedestrian Bridge and Pedestrian Crosswalk Logan, Utah

Sheet Title:
DETAILS

Date:
07/03/2017
Designed By: C.S.
Drawn By: S.D.
BIO-WEST PN:
#1945.5
Sheet No.

10



NOTE:
 1. CONTRACTOR IS RESPONSIBLE FOR A FULLY FUNCTIONING PEDESTRIAN ACTIVATED RAPID FLASH BEACON SYSTEM.

SIGN LAYOUT FOR PEDESTRIAN CROSSWALK WITH SOLAR POWERED PEDESTRIAN ACTIVATED RAPID FLASH BEACON (A)
 1" = 30'-0"



LOGAN RIVER TRAIL

Pedestrian Bridge and Pedestrian Crosswalk Logan, Utah

Sheet Title:
DETAILS

Date: 07/03/2017
Designed By: C.S. Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 11

K:\Projects\1945.4_LoganRiverRendezvousTrail

GENERAL

- 1. ALL DESIGN, CONSTRUCTION, AND INSPECTION SHALL BE IN CONFORMANCE WITH THE 2015 INTERNATIONAL BUILDING CODE (IBC) AND REFERENCED STANDARDS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE.
3. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY WORK INVOLVED.
4. DRAWINGS INDICATE THE FINISHED PRODUCT. THEY DO NOT INDICATE A METHOD OF CONSTRUCTION. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH PRECAUTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, ETC..
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPENSATING THE OWNER FOR ANY CHANGES MADE AS A RESULT OF A DEVIATION FROM THE CONTRACT DOCUMENTS, DEVIATION FROM THE SPECIFICATIONS, FAULTY MATERIALS, OR FAULTY WORKMANSHIP.
6. OPTIONS ARE FOR THE CONTRACTOR'S CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED DESIGN CHANGES. COST ASSOCIATED WITH ANY DESIGN WORK INITIATED BY THE OWNER SHALL BE BORNE BY THE CONTRACTOR.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR SAFETY AND PROTECTION WITHIN AND ADJACENT TO THE JOB SITE.
8. TEMPORARY SHORING AND BRACING SHALL BE PROVIDED WHEREVER NECESSARY TO TAKE CARE OF ALL LOADS TO WHICH THE STRUCTURE MAY BE SUBJECTED INCLUDING WIND. SUCH BRACING SHALL BE LEFT IN PLACE AS LONG AS MAY BE REQUIRED FOR SAFETY OR UNTIL ALL THE STRUCTURAL ELEMENTS ARE COMPLETE.
9. DURING AND AFTER CONSTRUCTION THE CONTRACTOR AND/OR OWNER SHALL KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOADS.
10. THE GENERAL CONTRACTOR SHALL HAVE SHOP DRAWINGS REVIEWED BY THE ENGINEER PRIOR TO THE FABRICATION OR ERECTION FOR THE FOLLOWING ITEMS: HELICAL PIERS, REINFORCING STEEL, PRE-ENGINEERED, AND PRE-MANUFACTURED STRUCTURAL STEEL BRIDGE.
11. ALL DETAILS, SECTIONS, AND NOTES ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS UNLESS NOTED OR SHOWN OTHERWISE.
12. REFER TO THE SPECIFICATIONS FOR ADDITIONAL INFORMATION NOT COVERED ON THE DRAWINGS.
13. OBSERVATION VISITS TO THE JOB SITE BY THE OWNER, ENGINEER OR FIELD REPRESENTATIVES OF THE ENGINEER SHALL NEITHER BE CONSIDERED AS INSPECTION NOR APPROVAL OF CONSTRUCTION.
14. SIZES, LOCATIONS, AND ANCHORAGE'S OF EQUIPMENT SHALL BE VERIFIED IN THE FIELD WITH EQUIPMENT MANUFACTURERS (SUPPLIERS) PRIOR TO PLACING CONCRETE OR FABRICATING STEEL.

FOOTINGS

- 1. FOOTING ELEVATIONS SHOWN ON PLAN ARE TOP OF FOOTINGS AND ARE MINIMUM DEPTH. DIFFERENT OR UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
2. FOOTINGS SHALL BEAR AT A MINIMUM DEPTH OF 30" BELOW FINISHED GRADE.
3. NO FOOTINGS SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
4. ANY SOIL CONDITION ENCOUNTERED DURING EXCAVATION THAT IS CONTRARY TO THE CONDITIONS USED FOR DESIGN OF FOOTINGS, OR ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING.
5. ALL FOOTING EXCAVATIONS SHALL BE EXAMINED BY THE ENGINEER FOR VERIFICATION OF ADEQUATE BEARING CONDITIONS BEFORE PLACING CONCRETE.
6. COMPACT IMPORTED STRUCTURAL FILL AS UNDER FOOTINGS AS REQUIRED TO AT LEAST 90% OF MAXIMUM DRY DENSITY AS DETERMINED BY (MODIFIED PROCTOR) ASTM D1557.
7. ALLOWABLE BEARING CAPACITY = 1500 PSF, AS PER IBC CHAPTER 18.

POST-INSTALLED ANCHORS

- 1. EXCEPT WHERE INDICATED ON THE DRAWINGS, POST-INSTALLED ANCHORS SHALL CONSIST OF THE FOLLOWING ANCHOR TYPES AS PROVIDED BY HILTI, INC. CONTACT HILTI AT (800) 879-8000 FOR PRODUCT RELATED QUESTIONS.
2. ANCHORAGE TO CONCRETE
ADHESIVE ANCHORS FOR CRACKED AND UNCRACKED CONCRETE USE:
(1. HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HIT-Z ROD PER ICC ESR-3187.
(2. HILTI HIT-HY 200 SAFE SET SYSTEM WITH HILTI HOLLOW DRILL BIT SYSTEM WITH HAS-E THREADED ROD PER ICC ESR-3187.
(3. HILTI HIT-RE 500-SD SAFE SET EPOXY ADHESIVE ANCHORING SYSTEM WITH HAS-E THREADED ROD PER ICC ESR-2322 FOR SLOW CURE APPLICATIONS
3. INSTALL ANCHORS PER THE MANUFACTURER INSTRUCTIONS, AS INCLUDED IN THE ANCHOR PACKAGING.
4. THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ON-SITE INSTALLATION TRAINING FOR ALL OF THEIR ANCHORING PRODUCTS SPECIFIED. THE STRUCTURAL ENGINEER OF RECORD MUST RECEIVE DOCUMENTED CONFIRMATION THAT ALL OF THE CONTRACTOR'S PERSONNEL WHO INSTALL ANCHORS ARE TRAINED PRIOR TO THE COMMENCEMENT OF INSTALLING ANCHORS.
5. ANCHOR CAPACITY IS DEPENDANT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
6. EXISTING REINFORCING BARS IN THE CONCRETE STRUCTURE MAY CONFLICT WITH SPECIFIC ANCHOR LOCATIONS. UNLESS NOTED ON THE DRAWINGS THAT THE BARS CAN BE CUT, THE CONTRACTOR SHALL REVIEW THE EXISTING STRUCTURAL DRAWINGS AND SHALL UNDERTAKE TO LOCATE THE POSITION OF THE REINFORCING BARS AT THE LOCATIONS OF THE CONCRETE ANCHORS, BY HILTI FERROSCAN, GPR, X-RAY, CHIPPING OR OTHER MEANS.

CONCRETE

- 1. ALL CONCRETE SHALL MEET THE REQUIREMENTS OF ACI-301, SPECIFICATION FOR STRUCTURAL CONCRETE FOR BUILDINGS. PROPORTIONING OF INGREDIENTS FOR EACH CONCRETE MIX SHALL BE BY METHOD 2 OR THE ALTERNATE PROCEDURE GIVEN IN ACI-301. PLACE CONCRETE PER ACI-304 AND CONFORM TO ACI-604 (306) FOR COLD WEATHER PLACEMENT AND ACI-605 (305) FOR HOT WEATHER PLACEMENT. USE INTERIOR MECHANICAL VIBRATORS WITH 7,000 RPM MINIMUM FREQUENCY. DO NOT OVER-VIBRATE. CONCRETE SHALL BE PLACED MONOLITHICALLY BETWEEN CONSTRUCTION AND CONTROL JOINTS. PROTECT ALL CONCRETE FROM PREMATURE DRYING, EXCESSIVE HOT OR COLD TEMPERATURE FOR SEVEN DAYS AFTER PLACING.
2. STRENGTH
TWENTY-EIGHT DAY COMPRESSIVE STRENGTH SHALL BE:
4000 PSI, 5 1/2 SACK
SLUMP: 4 + 1 INCH.
MAX. WATER/CEMENT RATIO: 0.45
3. STRUCTURAL CONCRETE EXPOSURE CLASS: F2
4. MATERIALS
CEMENT: ASTM 150, TYPE I.
COARSE AND FINE AGGREGATE: ASTM C33.
WATER SHALL BE CLEAN AND POTABLE.
5. ADMIXTURES
WATER REDUCING ADMIXTURE: ASTM C494, ADMIXTURES SHALL BE USED IN EXACT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
SYNERGIZED PERFORMANCE SYSTEMS: CONCRETE USING ADMIXTURES TO PRODUCE FLOWABLE CONCRETE MAY BE USED SUBJECT TO ENGINEER'S APPROVAL.
6. AIR ENVIRONMENT: ASTM C260 AND ASTM C494, ENTRAIN 6% PLUS/MINUS 1 1/2% BY VOLUME IN ALL EXPOSED CONCRETE.
7. NO OTHER ADMIXTURE PERMITTED UNLESS APPROVED BY THE ENGINEER OF RECORD.
8. A STATEMENT OF MIX DESIGN FOR ALL CONCRETE SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER PRIOR TO COMMENCING WORK.
9. ALL CONCRETE WORK SHALL BE PLACED, CURED, STRIPPED, AND PROTECTED AS DIRECTED BY THE SPECIFICATIONS AND ACI STANDARDS AND PRACTICES.
10. BEFORE CONCRETE IS POURED CHECK WITH ALL TRADES TO ENSURE PROPER PLACEMENT OF ALL OPENINGS, SLEEVES, CURBS, CONDUITS, BOLTS, INSERTS, ETC. RELATIVE TO WORK.
11. REFER TO DRAWINGS FOR TYPICAL CONSTRUCTION JOINT DETAILS. UNLESS NOTED IN DRAWINGS, ALL REINFORCEMENT SHALL BE CONTINUOUS THROUGH JOINTS AND EACH CONSTRUCTION JOINT SHALL BE KEYS.
12. CONTRACTOR SHALL SUBMIT A PLACEMENT PLAN FOR REVIEW INCLUDING ALL ITEMS EMBEDDED IN CONCRETE AND ALL CONCRETE PENETRATIONS.

REINFORCING STEEL

- 1. ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH BP-66(04): ACI DETAILING MANUAL - 2011, ACI 350-11, AND ACI 318-14.
2. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A82 AND ASTM A185.
3. ALL REINFORCEMENT SHALL BE SECURELY TIED AND HELD IN PLACE.
4. REINFORCING BARS THAT ARE TO BE WELDED, INCLUDING DEFORMED BAR ANCHORS (D.B.A.) SHALL COMPLY WITH ASTM A708 OR ANOTHER APPROVED WELDABLE GRADE AND SHALL BE WELDED IN ACCORDANCE WITH THE A.W.S. RECOMMENDATIONS.
5. ALL CONTINUOUS REINFORCEMENT SHALL TERMINATE WITH A 90 DEG. TURN OR A SEPARATE CORNER BAR. ALL SPLICES IN CONCRETE SHALL LAP THE LISTED LAP LENGTH.
6. THE FOLLOWING CONCRETE COVER SHALL BE PROVIDED FOR REINFORCEMENT:
A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
B. ALL OTHER CONCRETE: 2"
7. PRIOR TO FABRICATION AND PLACEMENT, SHOP DRAWINGS FOR ALL REINFORCING STEEL SHALL BE REVIEWED BY THE ENGINEER.
8. REFER TO WALL CORNER AND WALL INTERSECTION REINFORCING DETAIL IN GENERAL, THE WALL CORNER REINFORCING SIZES AND SPACING SHALL BE CALLED OUT ON THE PLANS AND REFERENCED TO THESE DETAILS AND THE TYPICAL HORIZONTAL WALL REINFORCING SHALL LAP WITH THE HORIZONTAL REINFORCING.
9. ALL BENDS, UNLESS OTHERWISE SHOWN, SHALL BE A 90 DEGREE STANDARD HOOK. REFER TO STANDARD CONCRETE HOOK DETAILS.
10. UNLESS INDICATED OTHERWISE, CONTRACTOR MAY SPlice CONTINUOUS SLAB OR LONGITUDINAL BEAM BARS AT LOCATION OF HIS CHOOSING, EXCEPT THAT TOP BAR SPLICES SHALL BE LOCATED AT MIDSPAN AND BOTTOM BAR SPLICES SHALL BE LOCATED AT SUPPORTS. STAGGER SPLICES IN HORIZONTAL WALL BARS SO THAT NO TWO ADJACENT BARS IN THE SAME OR OPPOSITE CURTAIN ARE SPLICED AT THE SAME LOCATION. ALL REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE REQUIREMENTS OF THE STD. CONCRETE HOOK SCHEDULE AND THE CONCRETE REINFORCEMENT LAP AND DEVELOPMENT SCHEDULES.

FORM WORK

- 1. FOLLOW RECOMMENDED PRACTICE FOR CONCRETE FORMWORK (ACI-347).
2. ALL SHORING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FORMWORK SUPPORTS AND SHORING SHALL BE DESIGNED TO PROVIDE FINISHED CONCRETE SURFACES OF ALL FACES LEVEL, PLUMB, AND TRUE TO THE DIMENSIONS AND ELEVATIONS SHOWN. TOLERANCES AND VARIATIONS SHALL BE AS SPECIFIED.

ANCHOR BOLTS

- 1. CONCRETE ANCHOR RODS SHALL MEET THE QUALITY OF ASTM F1554 GRADE 36 KSI, GALVANIZED (ASTM A153, CLASS C) RODS AND SHALL HAVE A STANDARD BOLT HEAD OR AN EQUAL DEFORMITY IN THE EMBEDDED PORTION.

SHOP DRAWINGS

- SUBMIT SHOP DRAWINGS TO THE ARCHITECT/ENGINEER OF RECORD FOR THE FOLLOWING:
1. PRE-ENGINEERED, PRE-MANUFACTURER STEEL BRIDGE.
2. ANCHOR BOLTS.

STRUCTURAL STEEL

- 1. ALL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH AMERICAN INSTITUTE OF STEEL CONSTRUCTION SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDING, LATEST EDITION. OBTAIN APPROVAL OF THE ENGINEER OF RECORD PRIOR TO SITE CUTTING, MAKING ADJUSTMENTS OR PERFORMING FIELD WELDS NOT SCHEDULED OR SHOWN ON PLANS OR DETAILS. ALL ASTM A325 BOLTING MATERIAL SHALL BE PROVIDED WITH CERTIFIED DIRECT TENSION INDICATOR WASHERS AND HARDENED WASHERS FOR FIELD BOLTED CONNECTIONS.

PENETRATING CONCRETE SEALER

- 1. CHOOSE FROM THE FOLLOWING LIST OF: SILANE, SILOXANE, SILICATE, SILICONATE, ORGANO SILANE ESTER, STYRENE ACRYLIC COPOLYMER, ORGANO SILOXANE, ALKYLALKOXY SILOXANE, ALKYLALKOXY SILANE.
2. KEEP SURFACES DRY AND FREE OF RELEASE AGENTS, LAITANCE, DIRT, DUST, PAINT, GREASE, OIL, RUST AND OTHER CONTAMINANTS.
3. REMOVE ANY CURING COMPOUND FROM THE SURFACE OF THE CONCRETE BEFORE APPLYING PENETRATING SEALER.
4. USE ONE OF THE FOLLOWING CLEANING METHODS:
1. HYDROBLASTING -700 PSI MIN.
2. SHOTBLASTING
3. SANDBLASTING
4. ETCHING
5. KEEP CONCRETE SURFACE MATRIX INTACT WITHOUT EXPOSING ANY LARGE AGGREGATE.
6. CURE CONCRETE FOR 28 DAYS BEFORE SEALER APPLICATION.
7. OBTAIN APPROVAL FROM THE ENGINEER BEFORE APPLYING MATERIAL.
8. COAT ONLY WHEN THE OUTSIDE AIR TEMPERATURE WILL REMAIN BETWEEN 45 AND 90 DEGREES FOR 24 HOURS.
9. APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR HORIZONTAL, VERTICAL, AND OVERHEAD SURFACES.
10. APPLY CONCRETE SEALER EVENLY AT AN APPLICATION RATE RECOMMENDED BY THE MANUFACTURER.

STRUCTURAL DESIGN LOADS

THE FOLLOWING STRUCTURAL DESIGN LOADS APPLY U.N.O.:

LIVE LOAD L = 60 PSF
VEHICLE LOAD L = 4000 LBS

SNOW LOAD:
GROUND SNOW LOAD. Pg = 57 PSF
SNOW IMPORTANCE FACTOR. Is = 1.00
SNOW EXPOSURE FACTOR. Ce = 1.00
SNOW THERMAL FACTOR. Ct = 1.2
FLAT SNOW LOAD. Pf = 48 PSF

WIND:
BASIC WIND SPEED V = 115 MPH
WIND IMPORTANCE FACTOR. Iw = 1.00
WIND EXPOSURE. C

SEISMIC:
OCCUPANCY CATEGORY II
SEISMIC IMPORTANCE FACTOR. IE = 1.00
SPECTRAL RESPONSE ACCELERATION. Ss = 1.00
SPECTRAL RESPONSE ACCELERATION. S1 = .318
SEISMIC SOIL SITE CLASS D
SPECTRAL RESPONSE COEFFICIENT. SDS = .733
SPECTRAL RESPONSE COEFFICIENT. SD1 = .374
SEISMIC DESIGN CATEGORY D

MATERIALS TESTING - CONTRACTOR PROVIDED

- A. CONCRETE TESTS: TESTING OF COMPOSITE SAMPLES OF FRESH CONCRETE OBTAINED ACCORDING TO ASTM C 172 SHALL BE PERFORMED ACCORDING TO THE FOLLOWING REQUIREMENTS:
1. TESTING FREQUENCY: OBTAIN ONE COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD. PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD. OR FRACTION THEREOF.
a. IF THE TOTAL VOLUME OF CONCRETE ON A GIVEN STRUCTURE IS SUCH THAT THE FREQUENCY OF TESTING WILL PROVIDE LESS THAN FIVE COMPRESSIVE-STRENGTH TESTS FOR EACH CONCRETE MIXTURE, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED.
2. SLUMP: ASTM C 143/C 143M; ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
3. AIR CONTENT: ASTM C 231, PRESSURE METHOD, FOR NORMAL-WEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE.
4. CONCRETE TEMPERATURE: ASTM C 1064/C 1064M; ONE TEST HOURLY WHEN AIR TEMPERATURE IS 40 DEG F AND BELOW AND WHEN 80 DEG F AND ABOVE, AND ONE TEST FOR EACH COMPOSITE SAMPLE.
5. UNIT WEIGHT: ASTM C 567. FRESH UNIT WEIGHT OF STRUCTURAL LIGHTWEIGHT CONCRETE; ONE TEST FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE.
6. COMPRESSION TEST SPECIMENS: ASTM C 31/C 31M.
a. CAST AND LABORATORY CURE THREE SETS OF TWO STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE.
b. CAST AND FIELD CURE THREE SETS OF TWO STANDARD CYLINDER SPECIMENS FOR EACH COMPOSITE SAMPLE.
7. COMPRESSIVE-STRENGTH TESTS: ASTM C 39/C 39M; TEST ONE SET OF TWO LABORATORY-CURED SPECIMENS AT 7 DAYS, TEST ONE SET OF TWO LABORATORY-CURED SPECIMENS AT 14 DAYS, AND ONE SET OF TWO SPECIMENS AT 28 DAYS.
a. TEST ONE SET OF TWO FIELD-CURED SPECIMENS AT 7 DAYS, ONE SET OF TWO FIELD-CURED SPECIMENS AT 14 DAYS, AND ONE SET OF TWO SPECIMENS AT 28 DAYS.
b. A COMPRESSIVE-STRENGTH TEST SHALL BE THE AVERAGE COMPRESSIVE STRENGTH FROM A SET OF TWO SPECIMENS OBTAINED FROM SAME COMPOSITE SAMPLE AND TESTED AT AGE INDICATED.
B. COMPACTION TESTING:
1. 8" MAXIMUM LIFTS ON IMPORTED GRANULAR BORROW AS REQUIRED.
2. PROVIDE A MINIMUM OF (3) DENSITY TESTS AT EACH FOOTING.

SECTION 1704.2.5 FABRICATORS

Table with 2 columns: Field and Value. Row 1: APPROVED FABRICATOR - YES. Row 2: FABRICATORS NAME: CONTECH, BIG R BRIDGE, EXCEL BRIDGE. OTHER MANUFACTURERS SHALL BE APPROVED BASED ON EXPERIENCE BY THE ENGINEER. Row 3: FABRICATOR'S PLANT LOCATION: Row 4: REQUIRED IN-PLANT INSPECTIONS: NONE.

SECTION 1705.3 REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION

Table with 5 columns: Verification and Inspection, Continuous, Periodic, Referenced Standard, IBC Reference. Contains 8 rows of inspection items for reinforcing steel, anchors, and concrete placement.

SECTION 1705.6 REQUIRED VERIFICATION AND INSPECTION OF SOILS

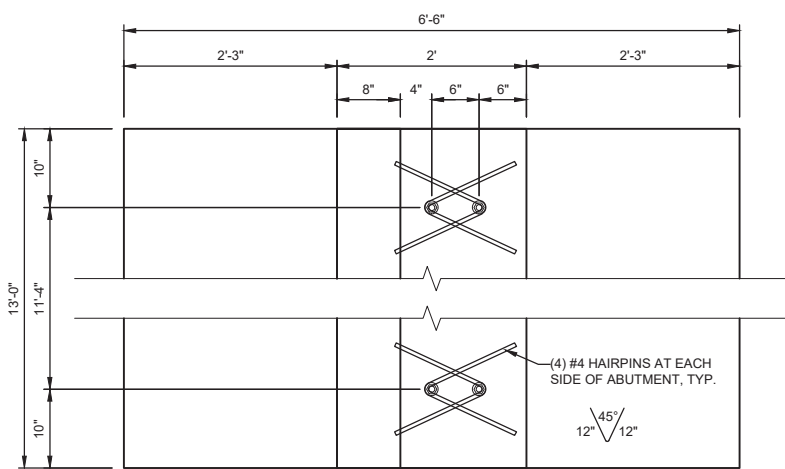
Table with 3 columns: Verification and Inspection, Continuous During Task Listed, Periodically During Task Listed. Contains 5 rows of soil inspection items.

Table with 4 columns: NO., REVISIONS, BY, DATE. Empty table for revision tracking.

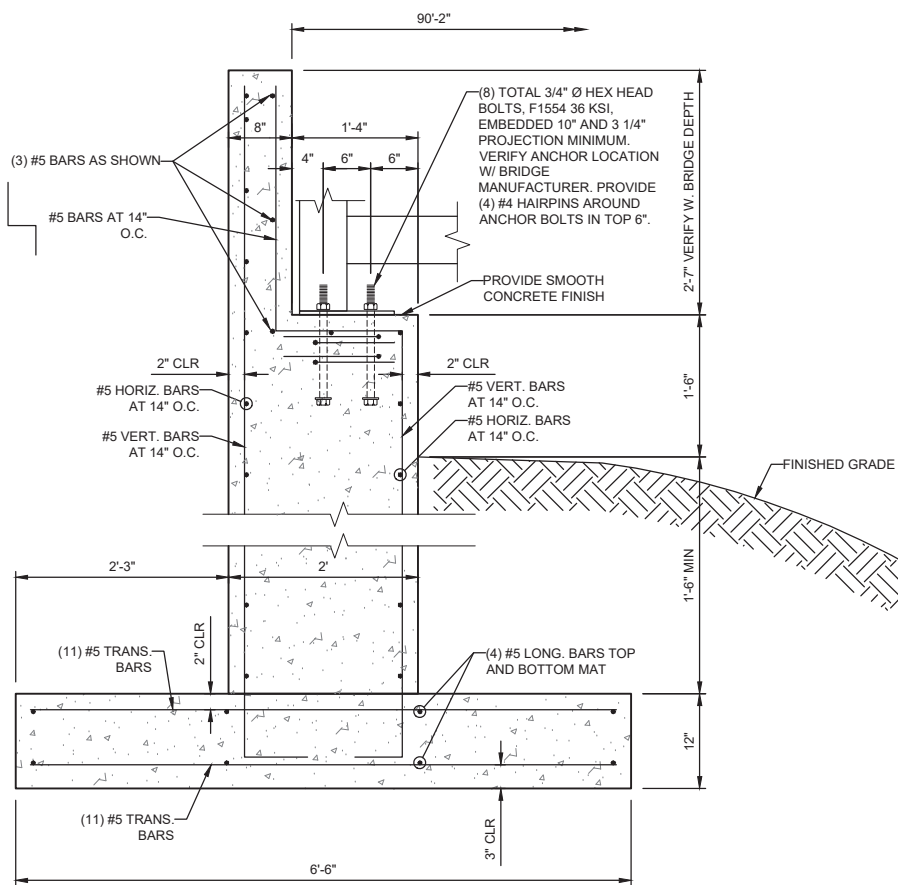
FORSGREN Associates, Inc. logo and contact information: 95 WEST 100 SOUTH, STE. 115, LOGAN, UT 84321. PH: 435.227.0333 FAX: 435.227.0334

Table with 2 columns: PROJECT NO. 14-16-0922-14 and various status checkboxes: DRAWN, DESIGNED, APPROVED, CHECKED.

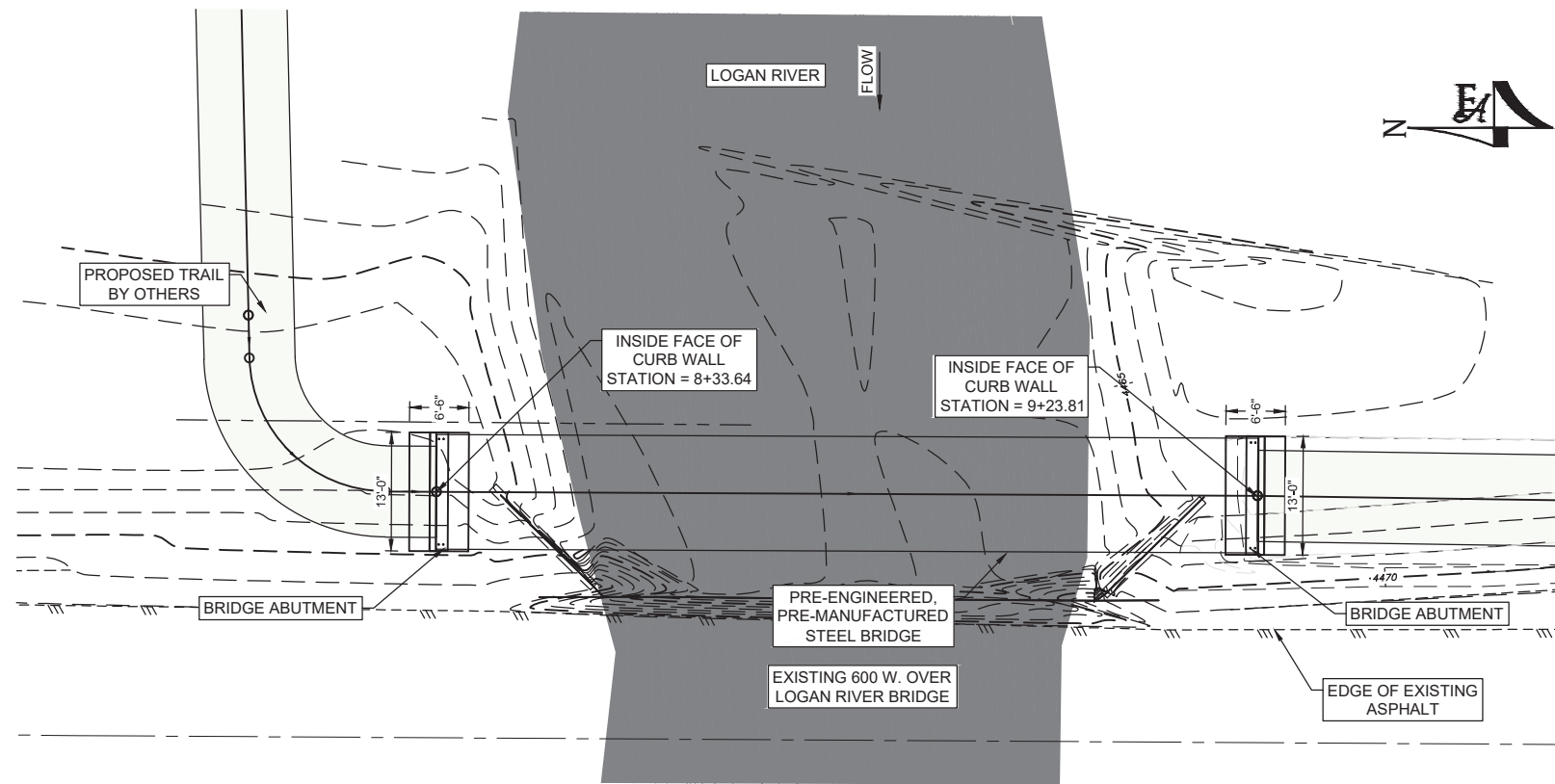
LOGAN RIVER TRAIL STRUCTURAL NOTES. SHEET NO: S001. DATE: 6/30/2017. PAGE NO: OF. Includes a circular professional engineer seal for CRAIG L. RASMUSSEN, No. 295553, State of Utah.



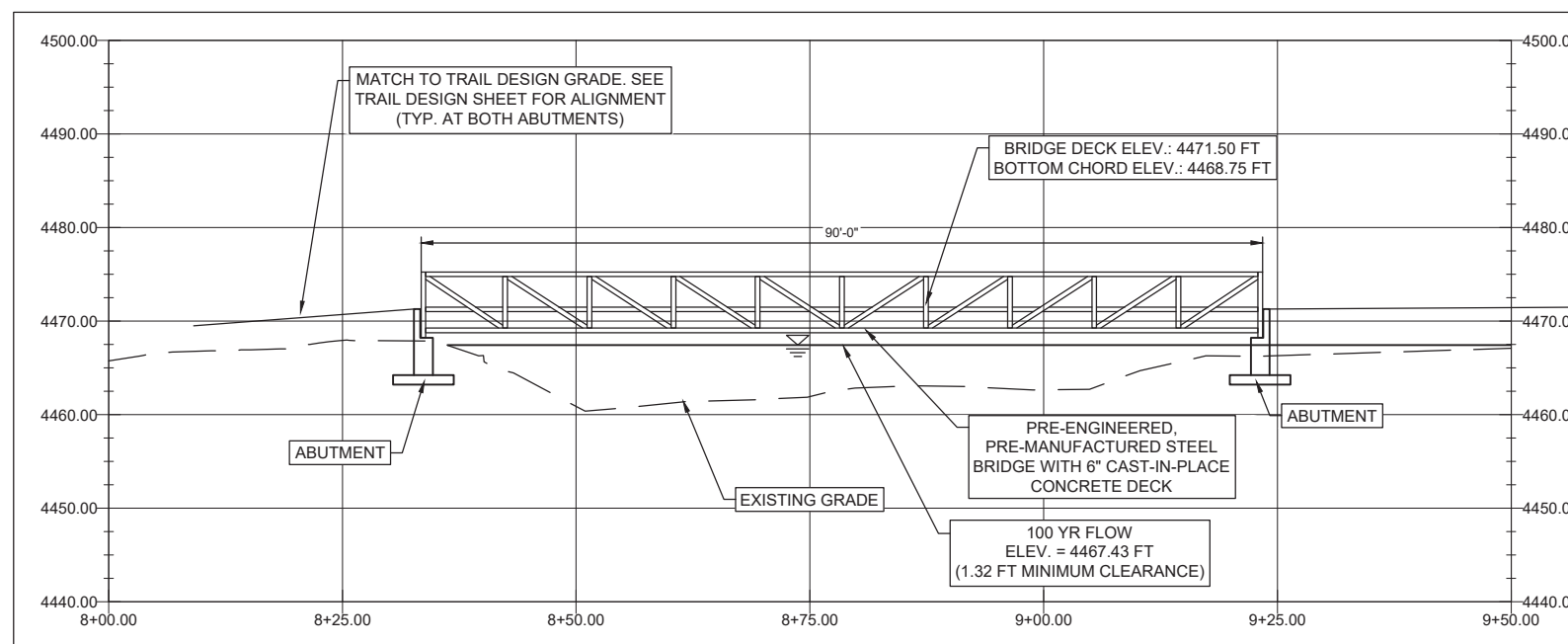
ANCHOR BOLTS
SCALE: 1/2" = 1'-0"



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



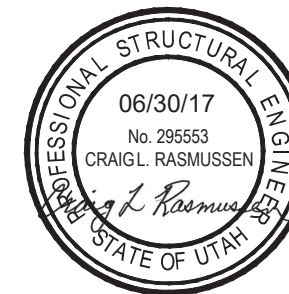
PLAN
SCALE: 1" = 20'-0"



ELEVATIONS
SCALE: 1" = 20'-0"

GENERAL NOTES:

- RESTORE EXCAVATED AREA PER PROPOSED TRAIL GRADING PLAN.
- FOOTING TO BE CONSTRUCTED ON SUITABLE UN-DISTURBED NATIVE MATERIAL OR COMPACTED STRUCTURAL FILL AS REQUIRED.
- BRIDGE SHALL BE CONSTRUCTED USING WEATHERING STEEL.
- CONCRETE DECK SHALL BE DESIGNED BY THE BRIDGE MANUFACTURER.
- APPLY PENETRATING CONCRETE SEALER TO CONCRETE DECK.



NO.	REVISIONS	BY	DATE

FORSGREN Associates, Inc.
95 WEST 100 SOUTH, STE. 115, LOGAN, UT 84321
PH: 435.227.0333
FAX: 435.227.0334

PROJECT NO.	DATE	DRWN	DESIGNED	APPROVED	SCALE
14-16-0922-14					

LOGAN RIVER TRAIL

PEDESTRIAN BRIDGE

SHEET NO:
S100

DATE:
6/30/2017
PAGE NO:
OF