Logan River at Rendezvous Park
Channel and Floodplain Restoration
Logan, Utah

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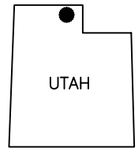
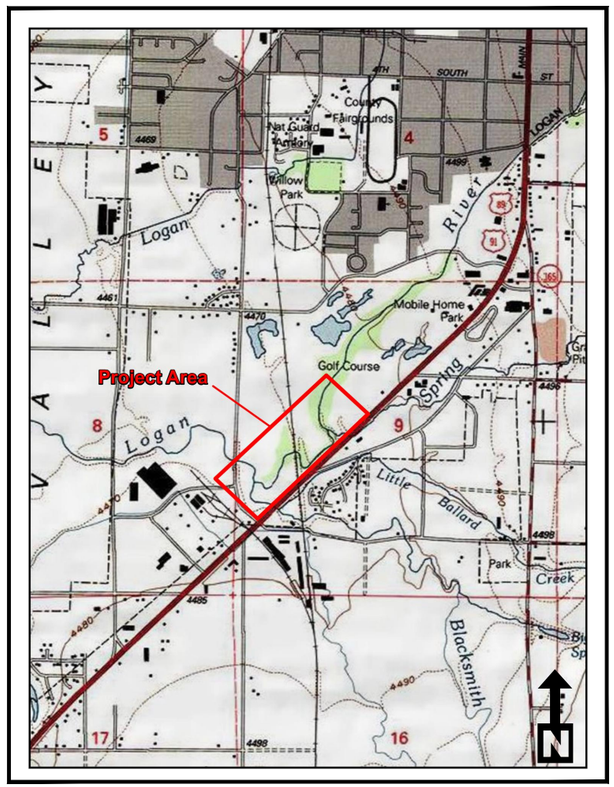
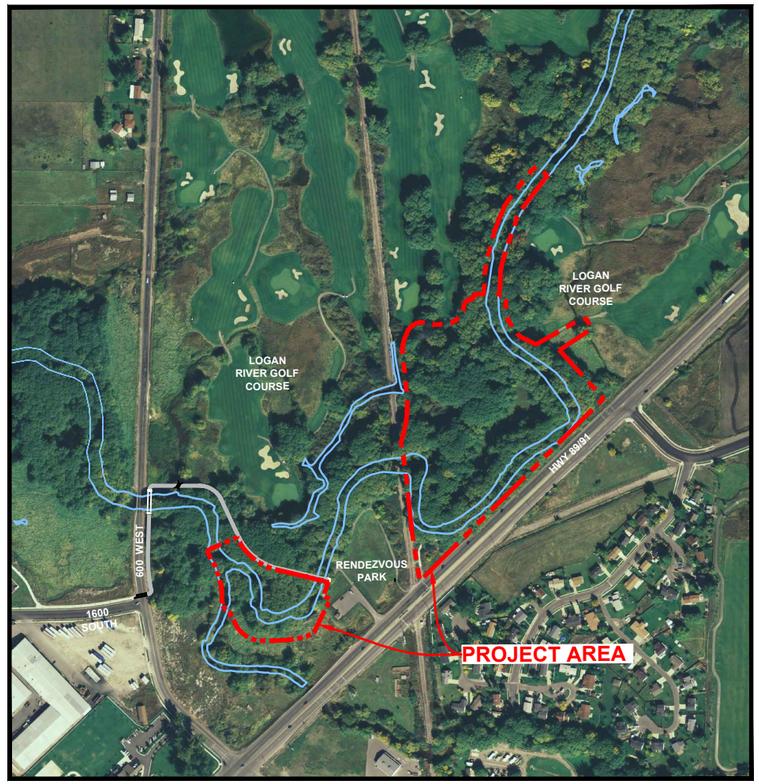


GENERAL LOCATION MAP (NTS)



PROJECT LOCATION MAP (NTS)



PROJECT AREA MAP (NTS)

SHEET LISTING

LICENSED LANDSCAPE ARCHITECT
No. 6677105
SANDRA DAVENPORT
7/3/2017
ELECTRONIC SEAL
STATE OF UTAH

Date:
07/03/2017

Note: Plans are intended to be printed in color on 11" x 17" size paper.

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GENERAL NOTES

Project Limits

All construction activity shall be confined to the project area boundary 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

The base survey was provided by Logan City. Basis of bearing for plans is NAD 1983 State Plane Utah North, FIPS 4301_Feet. Survey staking is the responsibility of the Contractor. The Contractor may obtain CAD files from the Preparer for staking and layout purposes.

Permits

Logan City has acquired the necessary State of Utah Stream Alteration permit and Corps 404 Wetland permit and Logan City Floodplain permit for the project. The Contractor is required to secure a State UPDES permit and a Logan City Land Disturbance permit for the project. 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. All construction shall be in accordance with APWA standard specifications unless otherwise noted.

Utilities

Utility locations have not been surveyed. It is the responsibility of the Contractor to perform all utility locations at least 72 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 restored to pre-construction condition. The Contractor is responsible to restore (regrade, seed and mulch) disturbed areas and clean up the site at the completion of the project.

Storm Water Pollution Prevention Plan Items

1. No earth shall be disturbed until applicable erosion control measures such as gravel construction entrances are in place. The straw wattles will be installed following seed and mulch application.

2. Erosion control measures will be maintained and remain in place until re-vegetation goals of 70% native vegetation cover have been achieved.

3. Monitor, inspect, and maintain all erosion control measures as needed to prevent erosion and sediment discharge into river and creek. Adjust locations of measures and install additional measures as construction phasing requires. Disturbed areas where construction activity has ceased will be stabilized in accordance with State UPDES and Logan City requirements.

4. The Contractor is responsible for submittal of NOI and acquisition of UPDES Storm Water General Permit for Construction Activities (UTR300000) and for SWPPP design, layout, installation, inspection and maintenance of erosion/sediment controls. The Contractor is responsible to submit SWPPP to Logan City for review prior to initiating any disturbances. Approval is required prior to any disturbance.

5. The Contractor is responsible for implementing and utilizing Best Management Practices (BMPs) to prevent storm water runoff and water pollution during construction activities. Tracking dirt on any paved road is not allowed. The Contractor is responsible for supplying equipment and plans that provide both dust and fire control during project construction. Dust especially near the highway is not allowed. 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

Flagged native shrubs in the new channel alignment are to be removed with as much soil and roots as possible. These plants are to be replanted immediately or stored and replanted at the end of construction, before soil placement as directed by Owner's Representative. All existing vegetation not in designated clearing and grubbing areas and not designated for removal is to be protected in place.

Existing on-site materials within designated clearing and grubbing areas shall be carefully removed and stored for re-use, or disposed of at an approved landfill facility. Completely remove stumps, roots, shrubs, weeds, and other debris protruding from the ground in areas to be cleared and grubbed. Some cleared trees and woody debris will be set aside and relocated for use in landscaping. Relocated trees and shrubs is considered directed time by Owner's Representative. Other cleared trees and woody debris will be used to manufacture temporary wood mulch trails. All unused cleared trees and woody debris will be removed and disposed of at an approved landfill facility.

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 or suitable imported material.

All existing topsoils shall be salvaged and re-used to the extent possible. 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). Crack Willow twigs shall be removed from soil surface prior to topsoil excavation.

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. Prevent mud, dust, and rock tracking. Inspect paved roads and walkways adjacent to the project site regularly for mud tracking; sweep roadways as needed and ensure roads are clean at all times.

4. Clean site and dispose of construction waste as permitted.

5. The Contractor is responsible to repair and replace damaged trails, pavement, or landscaping.

6. The Contractor is responsible to keep access to public trails open at all times during construction.

7. Post signs or install barriers as required for public safety.

Landscape Planting Plan Notes

1. The planting plan is diagrammatic. Plant locations are approximate. Exact locations of plant materials are to be approved by the Owner's Representative in the field prior to installation.

2. All plant material shall conform to the guidelines established by "The American Standard for Nursery Stock", published by the American Association of Nurserymen, Inc.

3. No substitution of plant species will be allowed without the written approval of the Owner's Representative.

4. Provide a minimum of six (6) inches of topsoil on areas to be seeded and revegetated.

5. Implement a weed control program to control invasive and noxious weeds during construction.

6. Wash equipment and vehicles if necessary to reduce the possibility of introducing toxic materials and undesirable plant species from previous work sites into the project area.

7. Fuel machinery off-site or in a confined, designated area to prevent spillage into soils, waterways, or wetlands.

ABBREVIATIONS

APPROX	APPROXIMATE
AVG	AVERAGE
BM	BENCHMARK
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
OHWM	ORDINARY HIGH WATER MARK
REQ'D	REQUIRED
ROW	RIGHT OF WAY
SF	SQUARE FOOT
SHT	SHEET
TW	TOP OF WALL
TYP	TYPICAL
VERT	VERTICAL

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LOGAN CITY UNITED IN SERVICE

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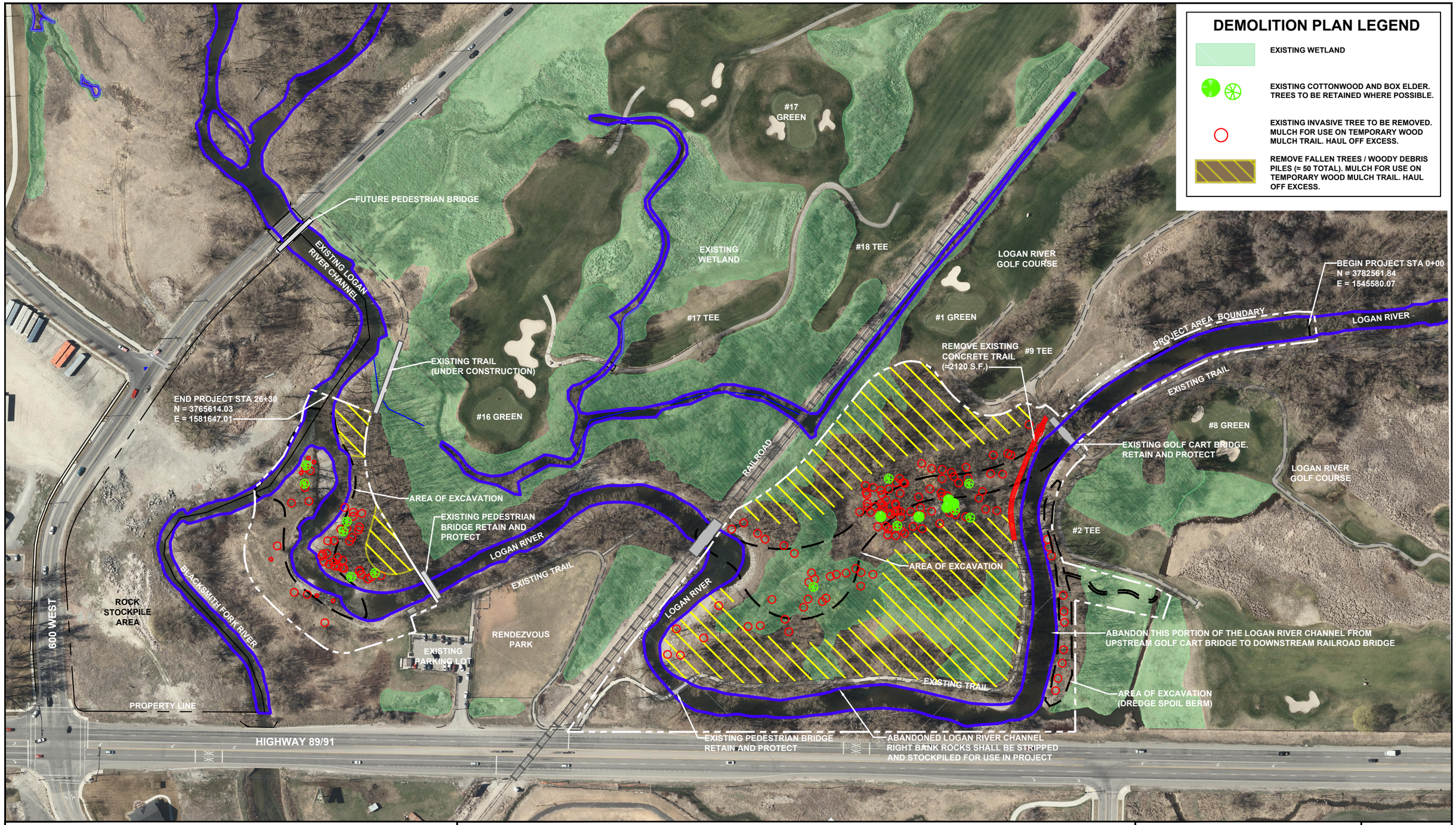
Logan River at Rendezvous Park Channel and Floodplain Restoration

Logan, Utah

Sheet Title:

GENERAL NOTES

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 2



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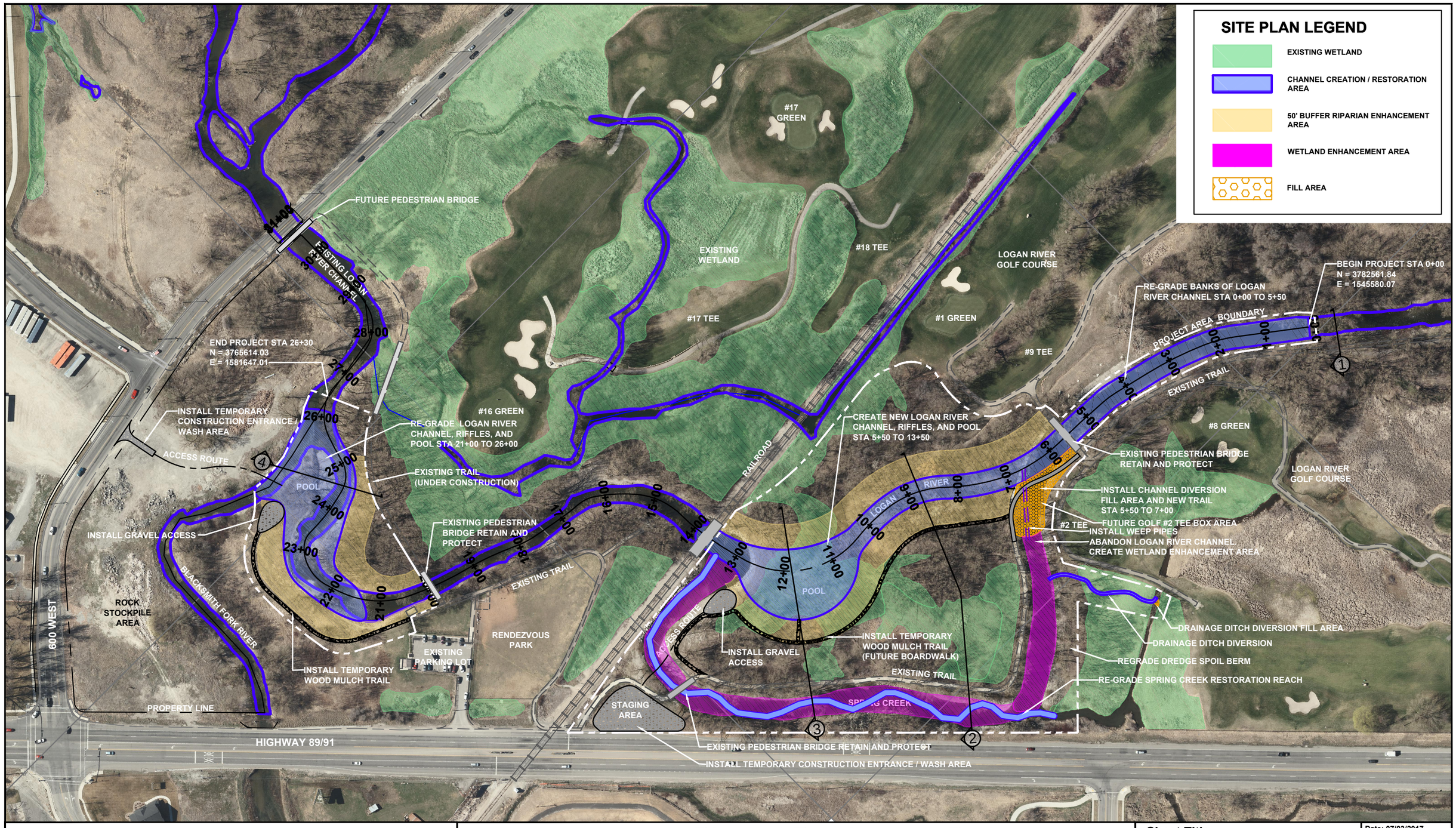
Logan, Utah

Sheet Title:

DEMOLITION PLAN

0 90 180 Feet

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 3



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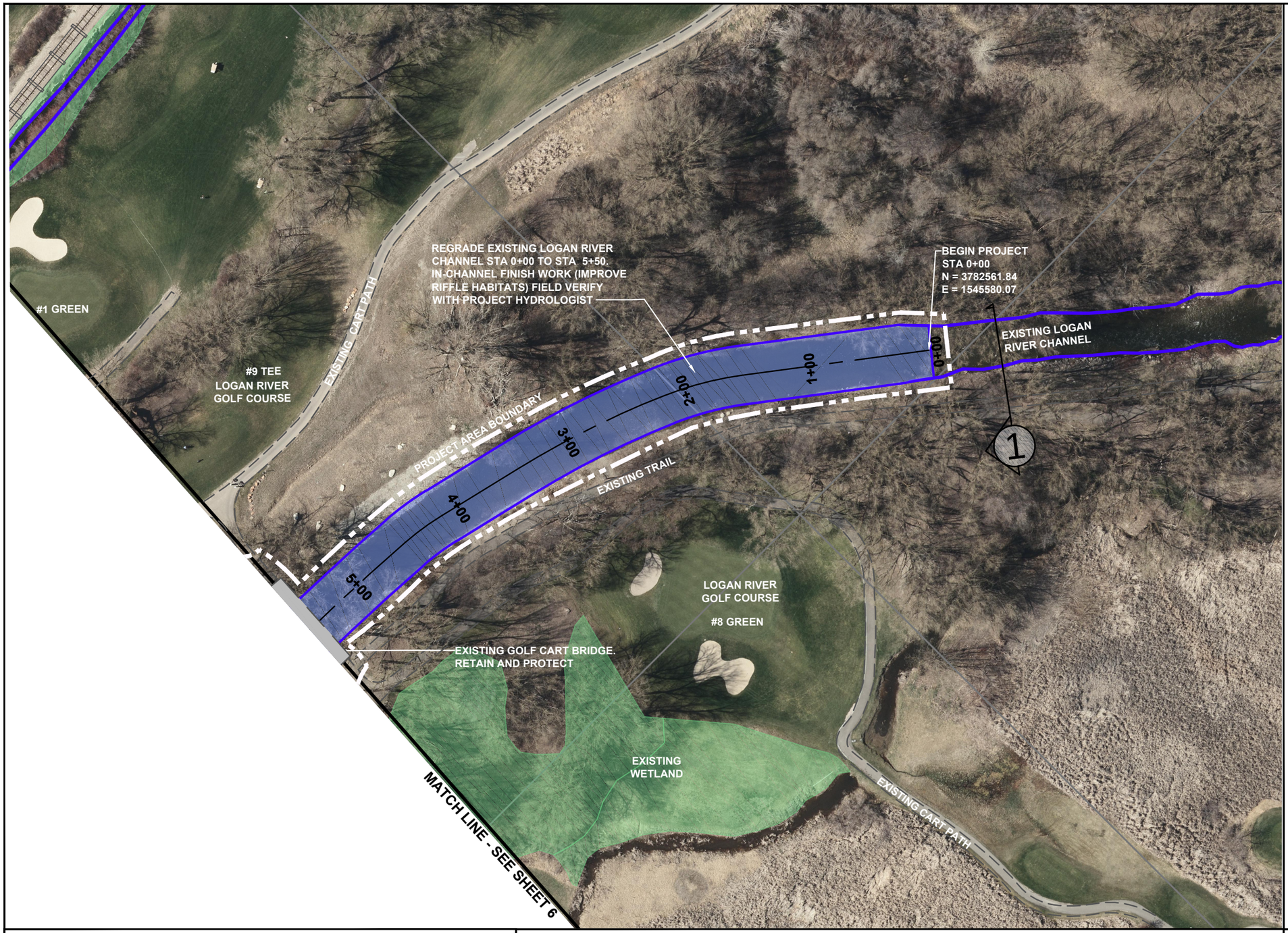
Logan River at Rendezvous Park
Channel and Floodplain Restoration
Logan, Utah

Sheet Title:
OVERALL SITE PLAN

0 90 180 Feet

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 4



SITE PLAN LEGEND

- EXISTING WETLAND
- CHANNEL CREATION / RESTORATION AREA
- 50' BUFFER RIPARIAN ENHANCEMENT AREA
- WETLAND ENHANCEMENT AREA
- FILL AREA

SITE PLAN NOTES

1. THE CONTRACTOR SHALL LAYOUT AND STAKE ALL SITE DESIGN ELEMENTS AND VERIFY LOCATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION.

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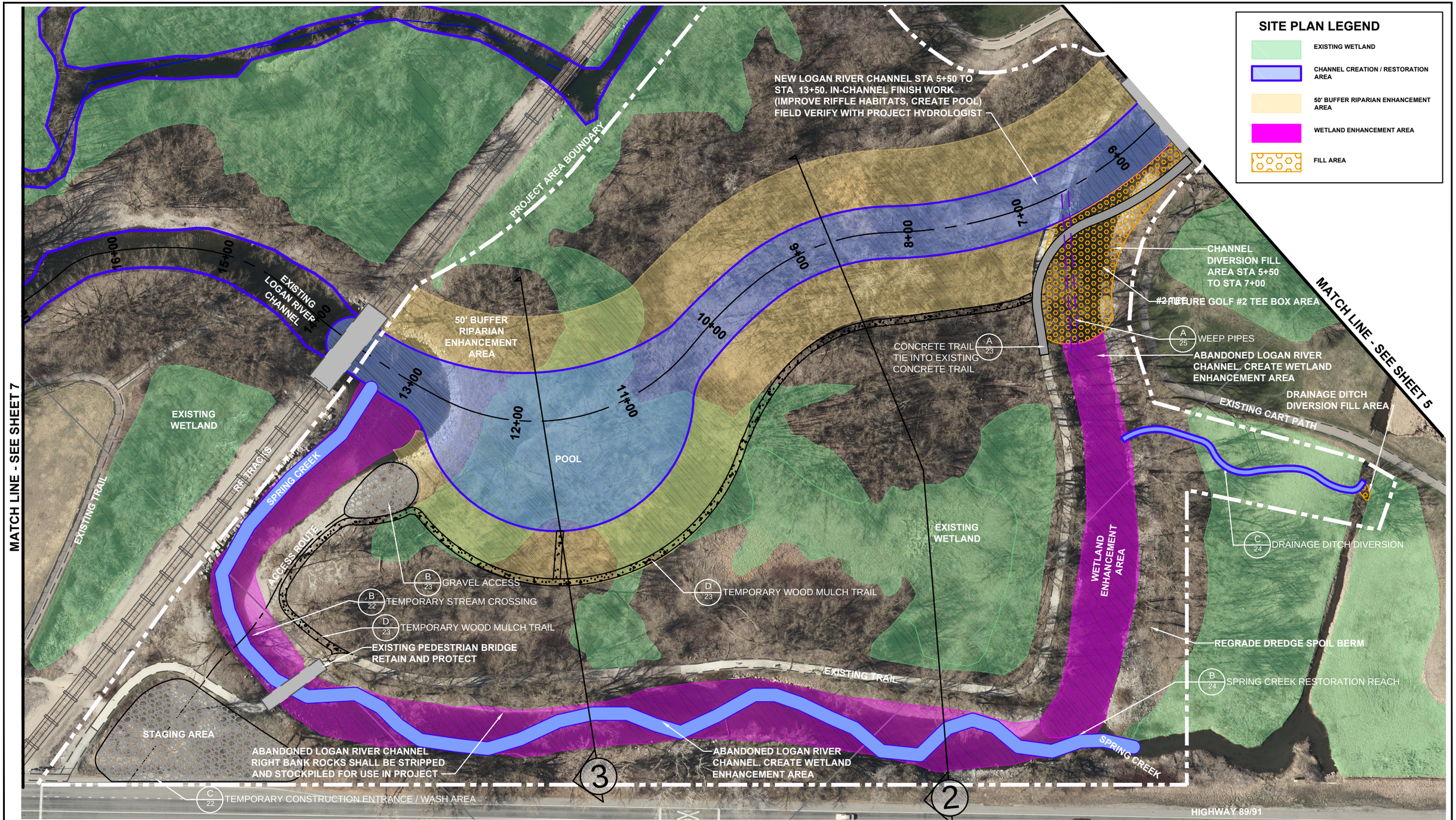
Logan River at Rendezvous Park Channel and Floodplain Restoration

Logan, Utah

Sheet Title:
SITE PLAN

0 40 80 Feet

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 5



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Logan, Utah

Sheet Title:

SITE PLAN

0 40 80 Feet

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 6

SITE PLAN LEGEND

- EXISTING WETLAND
- CHANNEL CREATION / RESTORATION AREA
- 50' BUFFER RIPARIAN ENHANCEMENT AREA
- WETLAND ENHANCEMENT AREA
- FILL AREA

END PROJECT
STA 26+30
N = 3765614.03
E = 1581647.01

C/22 TEMPORARY CONSTRUCTION ENTRANCE / WASH AREA

ACCESS ROUTE

4

B/22 TEMPORARY STREAM CROSSING

B/23 GRAVEL ACCESS

REGRADE EXISTING LOGAN RIVER CHANNEL STA 21+00 TO STA 26+00. IN-CHANNEL FINISH WORK (IMPROVE POOLS AND RIFFLE HABITATS) FIELD VERIFY WITH PROJECT HYDROLOGIST

26+00
25+00
24+00
23+00
22+00
21+00
20+00
19+00
18+00

POOL

50' BUFFER RIPARIAN ENHANCEMENT AREA

#16 GREEN

EXISTING WETLAND

EXISTING TRAIL (UNDER CONSTRUCTION)

EXISTING PEDESTRIAN BRIDGE

EXISTING LOGAN RIVER CHANNEL

EXISTING TRAIL

PROJECT AREA BOUNDARY

BLACKSMITH FORK RIVER

600 WEST

ROCK STOCKPILE AREA

PROPERTY LINE

HIGHWAY 89/91

D/23 TEMPORARY WOOD MULCH TRAIL

EXISTING PARKING LOT (20 STALLS)

RENDEZVOUS PARK

EXISTING WETLAND

MATCH LINE - SEE SHEET 6

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Sheet Title:
SITE PLAN

0 40 80 Feet

N

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 7

GRADING PLAN LEGEND

- EXISTING WETLAND
- EXISTING CONTOUR (1' INTERVAL)
- PROPOSED CONTOUR (1' INTERVAL)

FUTURE PEDESTRIAN BRIDGE

EXISTING LOGAN RIVER CHANNEL

EXISTING WETLAND

LOGAN RIVER GOLF COURSE

BEGIN PROJECT STA 0+00
N = 3782561.84
E = 1545580.07
Z = 4477

RE-GRADE BANKS OF LOGAN RIVER CHANNEL STA 0+00 TO 5+50

PROJECT AREA BOUNDARY

EXISTING TRAIL (UNDER CONSTRUCTION)

RE-GRADE LOGAN RIVER CHANNEL AND RIFFLES & POOL STA 21+80 TO 26+00

EXISTING TRAIL

EXISTING PEDESTRIAN BRIDGE RETAIN AND PROTECT

LOGAN RIVER GOLF COURSE

POOL

GRAVEL ACCESS

EXISTING PEDESTRIAN BRIDGE

RAILROAD

INSTALL WEEP PIPES

BLACKSMITH FORK RIVER

PROJECT AREA BOUNDARY

EXISTING TRAIL

CREATE NEW LOGAN RIVER CHANNEL AND RIFFLES & POOL STA 5+50 TO 13+50

POOL

ROCK STOCKPILE AREA

RENDEZVOUS PARK

EXISTING PARKING LOT

DRAINAGE DITCH DIVERSION

GRAVEL ACCESS

EXISTING TRAIL

RE-GRADE SPRING CREEK RESTORATION REACH
SEE DETAIL B SHEET 24 FOR GRADE ELEVATIONS

PROPERTY LINE

STAGING AREA

SPRING CREEK

EXISTING PEDESTRIAN BRIDGE RETAIN AND PROTECT

HIGHWAY 89/91

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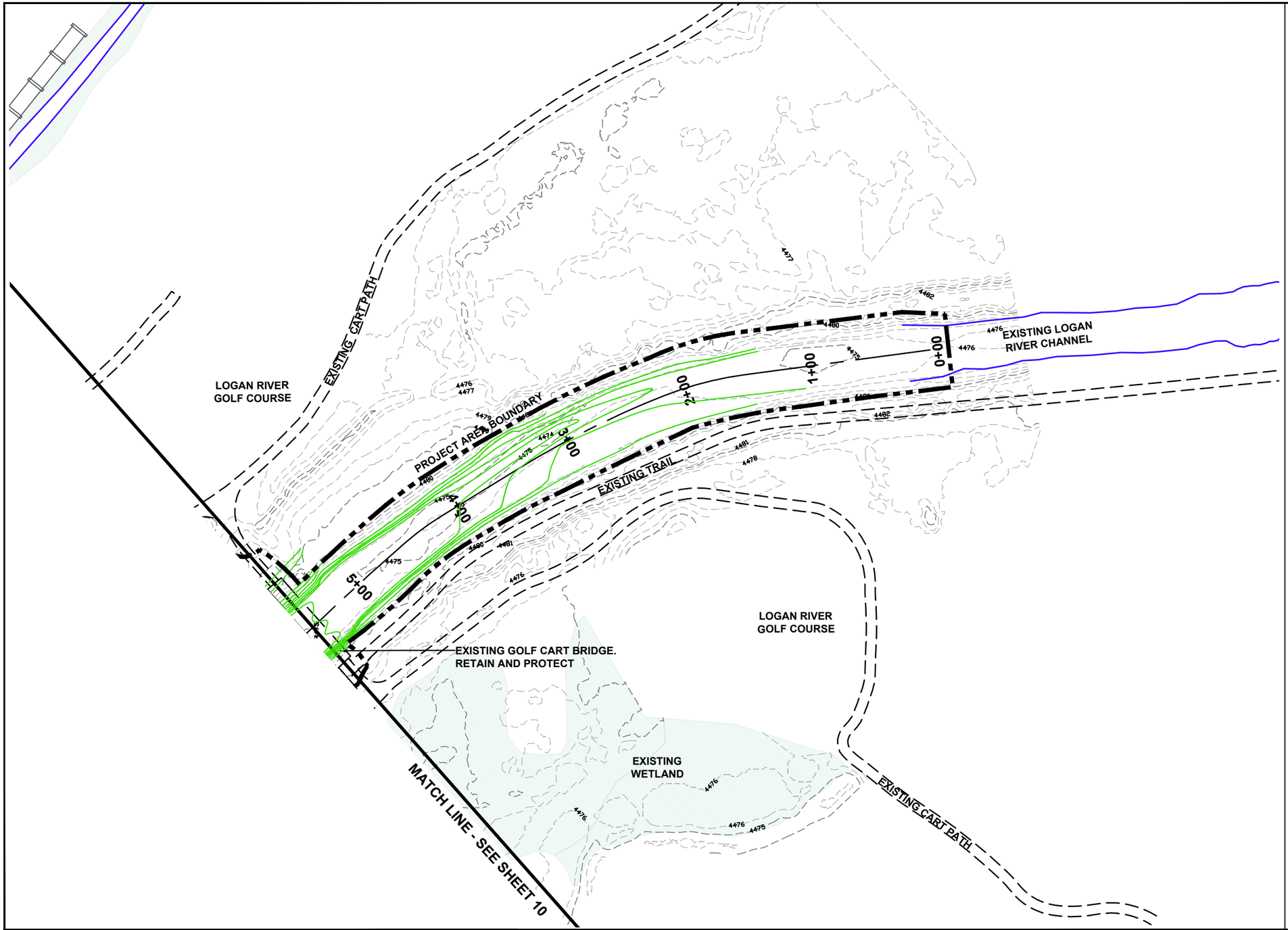
Channel and Floodplain Restoration
Logan, Utah

Sheet Title:
OVERALL GRADING PLAN

0 90 180 Feet

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 8



GRADING PLAN LEGEND

- EXISTING WETLAND
- EXISTING CONTOUR (1' INTERVAL)
- PROPOSED CONTOUR (1' INTERVAL)

GRADING PLAN NOTES

1. EXISTING TOPSOIL SHALL BE EXCAVATED AND SALVAGED BY CONTRACTOR FOR USE IN LANDSCAPING AND BACKFILL ACTIVITIES. ALL EXISTING TOPSOILS SHALL BE SALVAGED AND USED TO THE EXTENT POSSIBLE.

2. EXISTING RIVER BANK BOULDERS THAT ARE ON THE ABANDONED PORTION OF THE LOGAN RIVER, SHALL BE EXCAVATED AND SALVAGED BY CONTRACTOR FOR USE IN LANDSCAPING AND CHANNEL ROCK WORK CONSTRUCTION.

3. ALL EXCAVATED SOILS NOT USED AS BACKFILL MATERIAL SHALL BE HAULED OFF-SITE BY CONTRACTOR TO SITES DESIGNATED BY LOGAN CITY / OWNER'S REPRESENTATIVE. THE HAUL LOCATION SHALL BE WITHIN 5 MILES OF THE PROJECT SITE.

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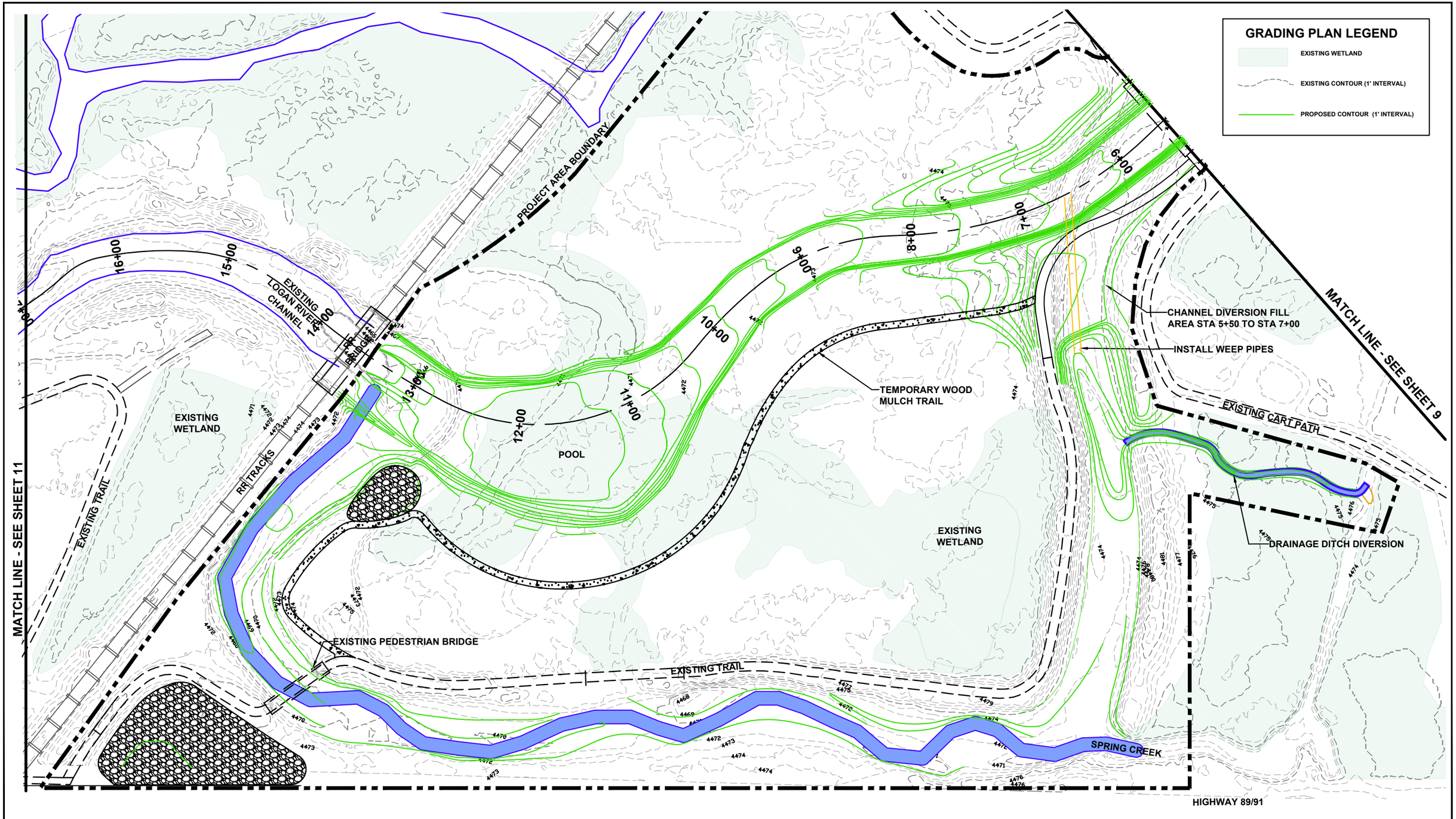
Logan, Utah

Sheet Title:
GRADING PLAN

0 40 80 Feet

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 9



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Logan, Utah

Sheet Title:
GRADING PLAN

0 40 80 Feet

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 10

GRADING PLAN LEGEND

- EXISTING WETLAND
- EXISTING CONTOUR (1' INTERVAL)
- PROPOSED CONTOUR (1' INTERVAL)

GRAVEL ACCESS
TEMPORARY WOOD MULCH TRAIL
POOL
EXISTING WETLAND
EXISTING TRAIL (UNDER CONSTRUCTION)
EXISTING LOGAN RIVER CHANNEL
EXISTING TRAIL
26+00
25+00
24+00
23+00
22+00
21+00
20+00
19+00
18+00
17+00
600 WEST
ROCK STOCKPILE AREA
BLACKSMITH FORK RIVER
PROJECT AREA BOUNDARY
EXISTING PARKING LOT (20 STALLS)
RENDEZVOUS PARK
EXISTING WETLAND
PROPERTY LINE
HIGHWAY 89/91
MATCH LINE - SEE SHEET 10

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Logan River at Rendezvous Park Channel and Floodplain Restoration

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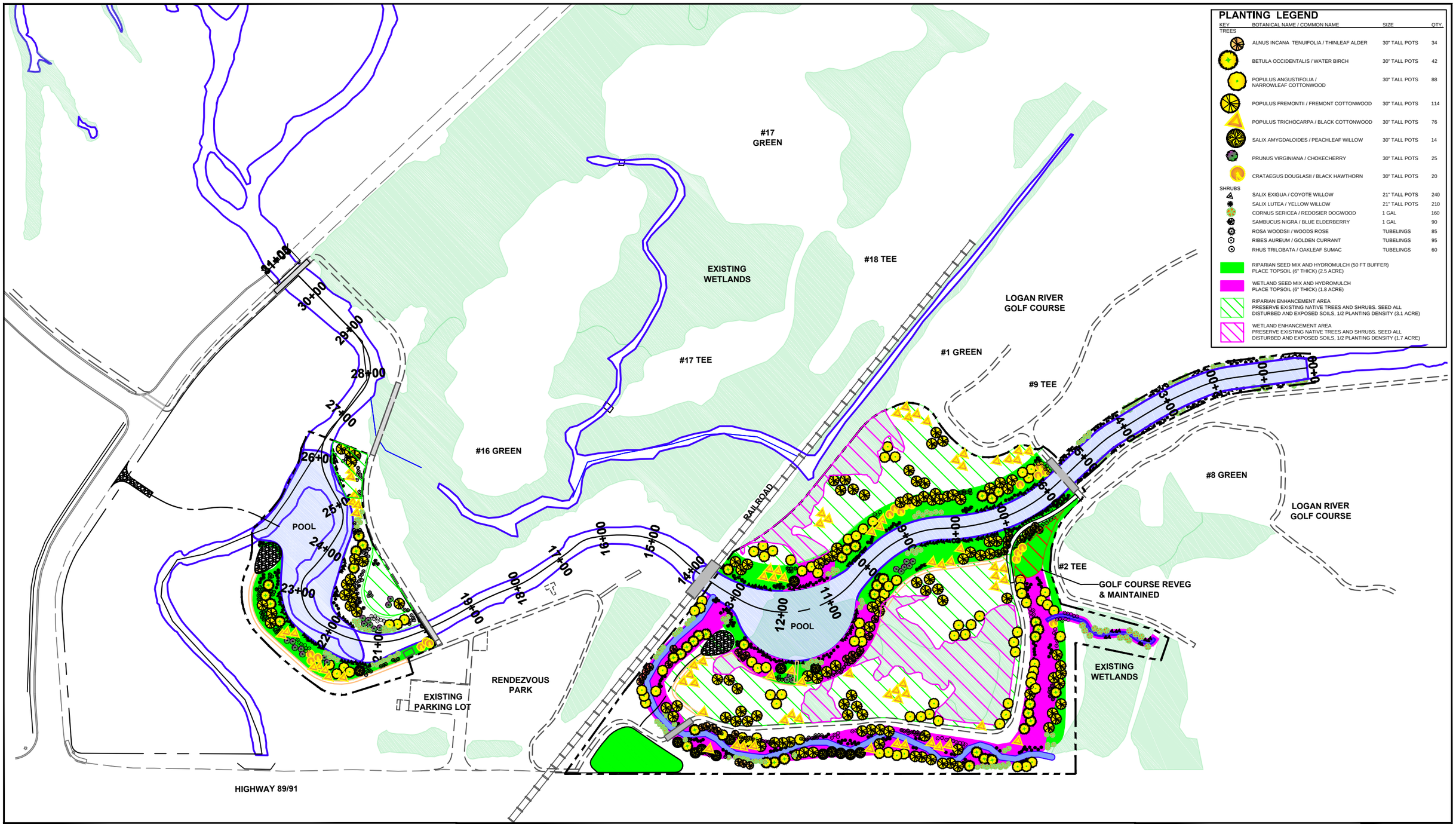
Sheet Title:
GRADING PLAN

0 40 80 Feet

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



PLANTING LEGEND

KEY	BOTANICAL NAME / COMMON NAME	SIZE	QTY.
TREES			
	ALNUS INCANA TENUIFOLIA / THINLEAF ALDER	30" TALL POTS	34
	BETULA OCCIDENTALIS / WATER BIRCH	30" TALL POTS	42
	POPULUS ANGUSTIFOLIA / NARROWLEAF COTTONWOOD	30" TALL POTS	88
	POPULUS FREMONTII / FREMONT COTTONWOOD	30" TALL POTS	114
	POPULUS TRICHOCARPA / BLACK COTTONWOOD	30" TALL POTS	76
	SALIX AMYGDALOIDES / PEACHLEAF WILLOW	30" TALL POTS	14
	PRUNUS VIRGINIANA / CHOKECHERRY	30" TALL POTS	25
	CRATAEGUS DOUGLASII / BLACK HAWTHORN	30" TALL POTS	20
SHRUBS			
	SALIX EXIGUA / COYOTE WILLOW	21" TALL POTS	240
	SALIX LUTEA / YELLOW WILLOW	21" TALL POTS	210
	CORNUS SERICEA / REDOSIER DOGWOOD	1 GAL	160
	SAMBUCUS NIGRA / BLUE ELDERBERRY	1 GAL	90
	ROSA WOODSII / WOODS ROSE	TUBELINGS	85
	RIBES AUREUM / GOLDEN CURRANT	TUBELINGS	95
	RHUS TRILOBATA / OAKLEAF SUMAC	TUBELINGS	60

RIPARIAN SEED MIX AND HYDROMULCH (50 FT BUFFER)
PLACE TOPSOIL (6" THICK) (2.5 ACRE)

WETLAND SEED MIX AND HYDROMULCH
PLACE TOPSOIL (6" THICK) (1.8 ACRE)

RIPARIAN ENHANCEMENT AREA
PRESERVE EXISTING NATIVE TREES AND SHRUBS. SEED ALL DISTURBED AND EXPOSED SOILS, 1/2 PLANTING DENSITY (3.1 ACRE)

WETLAND ENHANCEMENT AREA
PRESERVE EXISTING NATIVE TREES AND SHRUBS. SEED ALL DISTURBED AND EXPOSED SOILS, 1/2 PLANTING DENSITY (1.7 ACRE)

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Channel and Floodplain Restoration
Logan, Utah

Sheet Title:
OVERALL LANDSCAPE PLAN

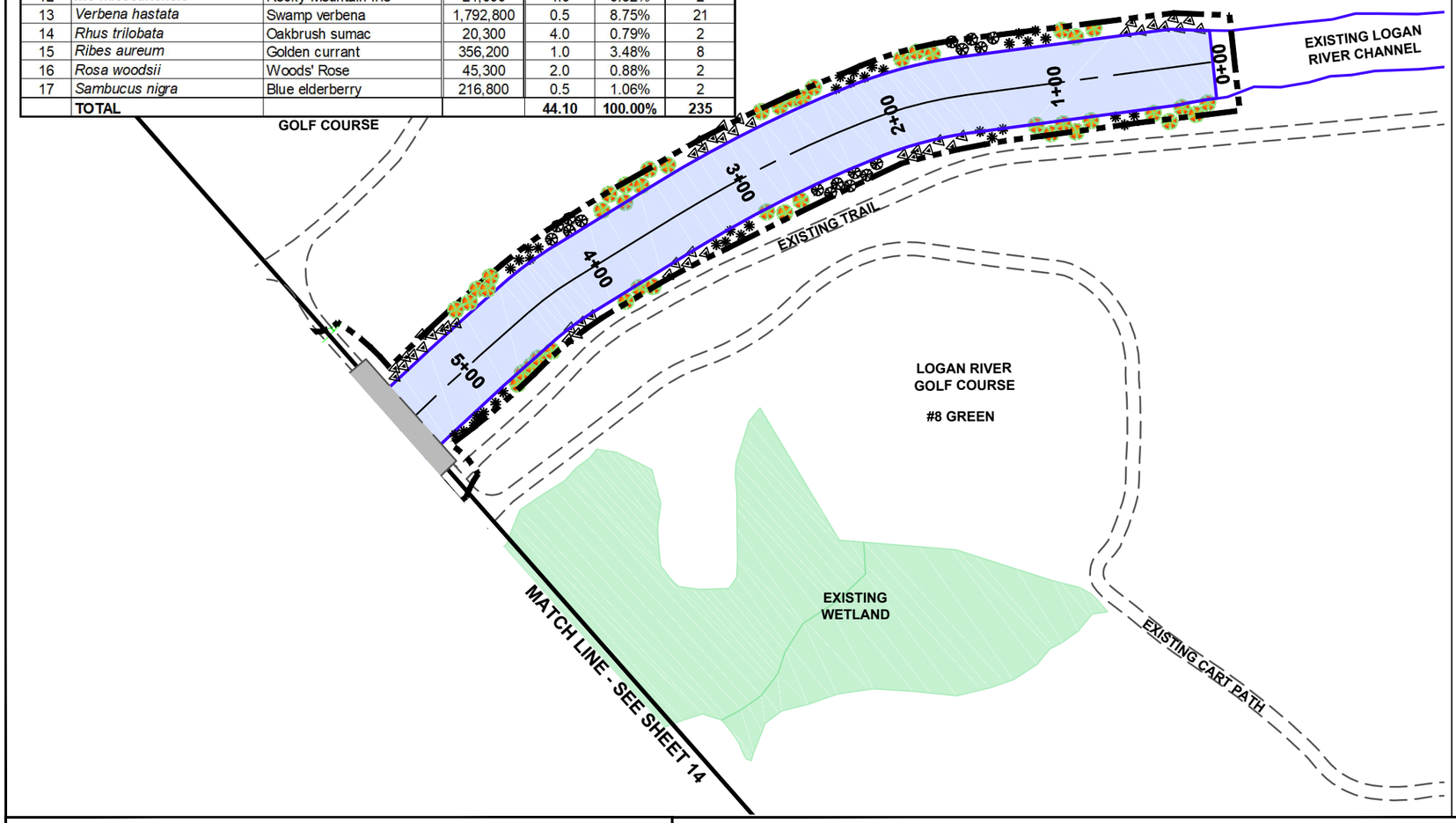
Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 12

RIPARIAN 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	*Calamagrostis canadensis*	Bluejoint reedgrass	2,270,000	0.5	11.08%	26
2	*Deschampsia cespitosa*	Tufted hairgrass	1,500,000	1.0	14.64%	34
3	*Elymus elymoides*	Western bottlebrush grass	192,000	5.0	9.37%	22
4	*Elymus lanceolatus*	Thickspike wheatgrass	154,000	5.0	7.52%	18
5	*Elymus trachycaulus*	Slender wheatgrass	159,000	5.0	7.76%	18
6	*Elymus canadensis*	Canada wildrye	115,000	5.0	5.61%	13
7	*Juncus balticus*	Baltic rush	10,900,000	0.10	10.64%	25
8	*Poa secunda (sandbergii)*	Sandberg bluegrass	1,046,960	1.0	10.22%	24
9	*Asclepias tuberosa*	Butterfly flower	102,400	4.0	4.00%	9
10	*Linum lewisii*	Lewis Flax	170,000	4.0	6.64%	16
11	*Penstemon eatonii*	Firecracker Penstemon	400,000	2.0	7.81%	18
12	*Iris missouriensis*	Rocky Mountain Iris	21,000	4.0	0.82%	2
13	*Verbena hastata*	Swamp verbena	1,792,800	0.5	8.75%	21
14	*Rhus trilobata*	Oakbrush sumac	20,300	4.0	0.79%	2
15	*Ribes aureum*	Golden currant	356,200	1.0	3.48%	8
16	*Rosa woodsii*	Woods' Rose	45,300	2.0	0.88%	2
17	*Sambucus nigra*	Blue elderberry	216,800	0.5	1.06%	2
	TOTAL			**44.10**	**100.00%**	**235**

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	*Carex nebrascensis*	Nebraska sedge	534,100	4.0	19.28%	49
2	*Carex rostrata*	Beaked sedge	444,000	3.0	12.02%	31
3	*Carex praegracilis*	Meadow sedge	664,900	2.0	12.00%	31
4	*Eleocharis palustris*	Spikerush	754,000	2.0	13.61%	35
5	*Juncus balticus*	Baltic rush	10,900,000	0.10	9.84%	25
6	*Schoenoplectus acutus*	Hardstem bulrush	377,600	5.0	17.04%	43
7	*Schoenoplectus americanus*	Threesquare bulrush	179,800	10.0	16.22%	41
	TOTAL			**22.10**	**100.00%**	**254**



PLANTING LEGEND

KEY	BOTANICAL NAME / COMMON NAME	SIZE	QTY.
TREES			
	ALNUS INCANA TENUIFOLIA / THINLEAF ALDER	30" TALL POTS	34
	BETULA OCCIDENTALIS / WATER BIRCH	30" TALL POTS	42
	POPULUS ANGUSTIFOLIA / NARROWLEAF COTTONWOOD	30" TALL POTS	88
	POPULUS FREMONTII / FREMONT COTTONWOOD	30" TALL POTS	114
	POPULUS TRICHOCARPA / BLACK COTTONWOOD	30" TALL POTS	76
	SALIX AMYGDALOIDES / PEACHLEAF WILLOW	30" TALL POTS	14
	PRUNUS VIRGINIANA / CHOKECHERRY	30" TALL POTS	25
	CRATAEGUS DOUGLASII / BLACK HAWTHORN	30" TALL POTS	20
SHRUBS			
	SALIX EXIGUA / COYOTE WILLOW	21" TALL POTS	240
	SALIX LUTEA / YELLOW WILLOW	21" TALL POTS	210
	CORNUS SERICEA / REDOSIER DOGWOOD	1 GAL	160
	SAMBUCUS NIGRA / BLUE ELDERBERRY	1 GAL	90
	ROSA WOODSII / WOODS ROSE	TUBELINGS	85
	RIBES AUREUM / GOLDEN CURRANT	TUBELINGS	95
	RHUS TRILOBATA / OAKLEAF SUMAC	TUBELINGS	60

RIPARIAN SEED MIX AND HYDROMULCH (50 FT BUFFER)
PLACE TOPSOIL (6" THICK) (2.5 ACRE)

WETLAND SEED MIX AND HYDROMULCH
PLACE TOPSOIL (6" THICK) (1.8 ACRE)

RIPARIAN ENHANCEMENT AREA
PRESERVE EXISTING NATIVE TREES AND SHRUBS. SEED ALL DISTURBED AND EXPOSED SOILS, 1/2 PLANTING DENSITY (3.1 ACRE)

WETLAND ENHANCEMENT AREA
PRESERVE EXISTING NATIVE TREES AND SHRUBS. SEED ALL DISTURBED AND EXPOSED SOILS, 1/2 PLANTING DENSITY (1.7 ACRE)

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Logan River at Rendezvous Park Channel and Floodplain Restoration

Logan, Utah

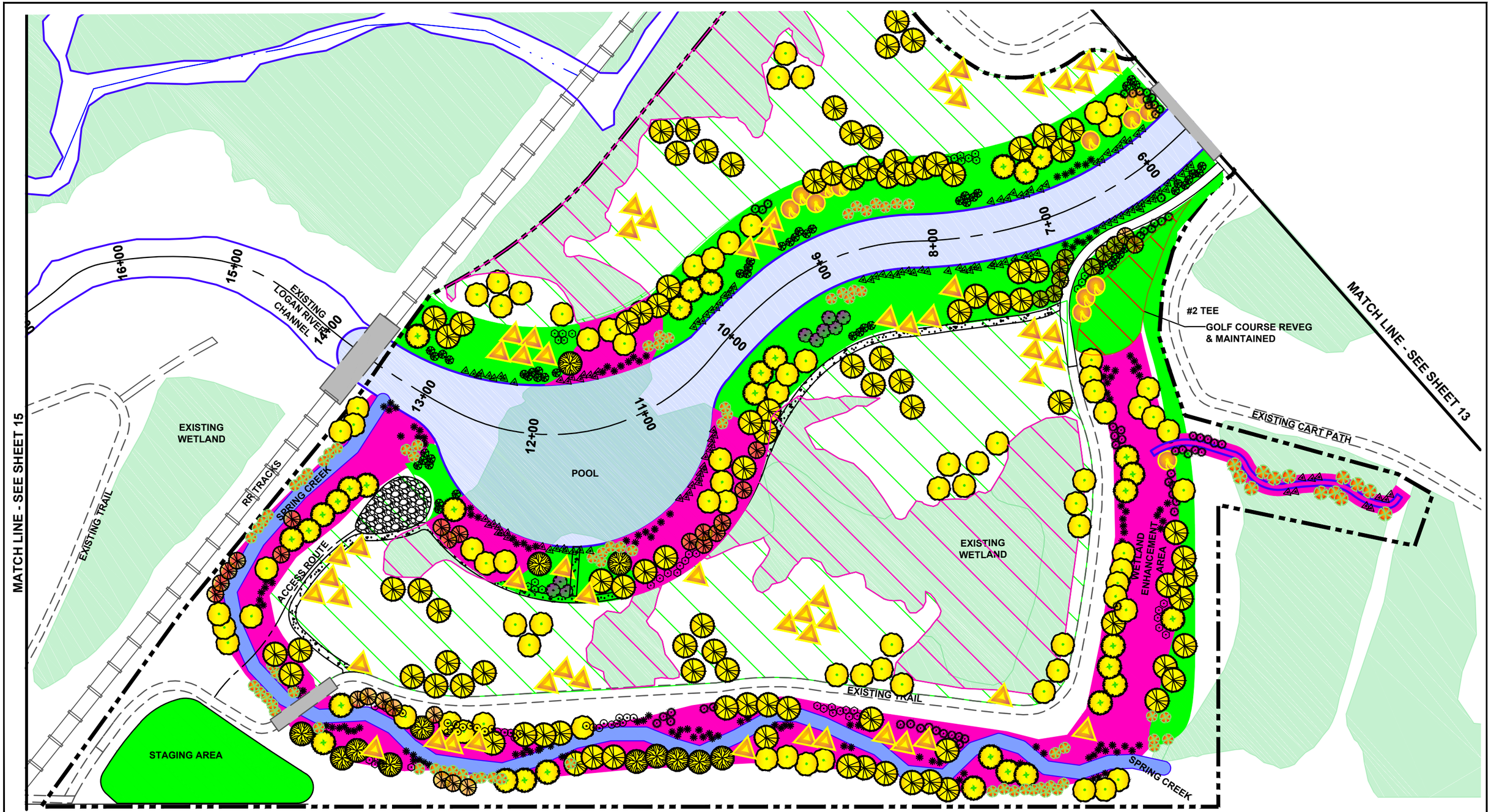
Sheet Title:

LANDSCAPE PLAN

0 40 80 Feet

N

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 13



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Sheet Title:

LANDSCAPE PLAN

0 40 80 Feet

Date: 07/03/2017
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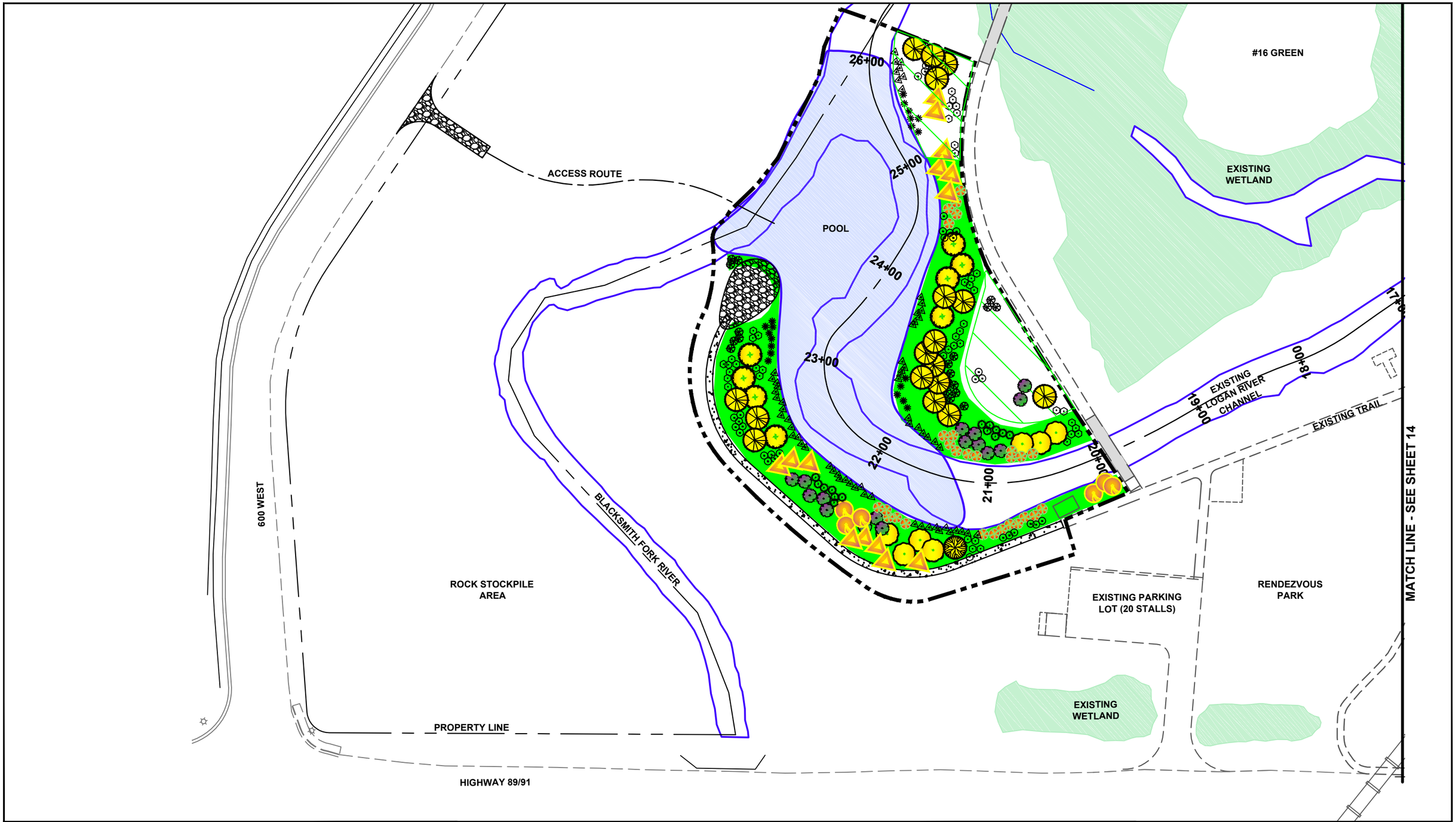
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 14



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Sheet Title:

LANDSCAPE PLAN

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 15

ROCK STRUCTURES LEGEND

- EXISTING WETLAND
- CHANNEL CREATION / RESTORATION AREA
- FILL AREA
- TOE ROCK (SEE DETAIL C, SHEET 23)
- RIFFLE ROCK CLUSTER (SEE DETAIL A, SHEET 24)
- TEMPORARY CONSTRUCTION ENTRANCE / WASH AREA (SEE DETAIL C, SHEET 22)

FUTURE PEDESTRIAN BRIDGE
EXISTING LOGAN RIVER CHANNEL
EXISTING WETLAND
LOGAN RIVER GOLF COURSE
BEGIN PROJECT STA 0+00
N = 3782561.84
E = 1545580.07
Z = 4477
PROJECT BOUNDARY
EXISTING LOGAN RIVER CHANNEL
EXISTING TRAIL
TEMPORARY CONSTRUCTION ENTRANCE / WASH AREA
EXISTING TRAIL (UNDER CONSTRUCTION)
ACCESS ROUTE
GRAVEL ACCESS
POOL
EXISTING PEDESTRIAN BRIDGE RETAIN AND PROTECT
RAILROAD
EXISTING PEDESTRIAN BRIDGE RETAIN AND PROTECT
LOGAN RIVER GOLF COURSE
FILL AREA
INSTALL WEEP PIPES
BLACKSMITH FORK RIVER
ROCK STOCKPILE AREA
600 WEST
EXISTING TRAIL
RENDEZVOUS PARK
EXISTING PARKING LOT
POOL
ACCESS ROUTE
GRAVEL ACCESS
DRAINAGE DITCH DIVERSION FILL AREA
DRAINAGE DITCH DIVERSION
ABANDON LOGAN RIVER CHANNEL.
EXISTING TRAIL
RIFFLE ROCK CLUSTER AT SPRING CREEK
SPRING CREEK
PROPERTY LINE
HIGHWAY 89/91
STAGING AREA
EXISTING PEDESTRIAN BRIDGE RETAIN AND PROTECT
TEMPORARY CONSTRUCTION ENTRANCE / WASH AREA
ABANDONED LOGAN RIVER CHANNEL RIGHT BANK ROCKS SHALL BE STRIPPED AND STOCKPILED FOR USE IN PROJECT

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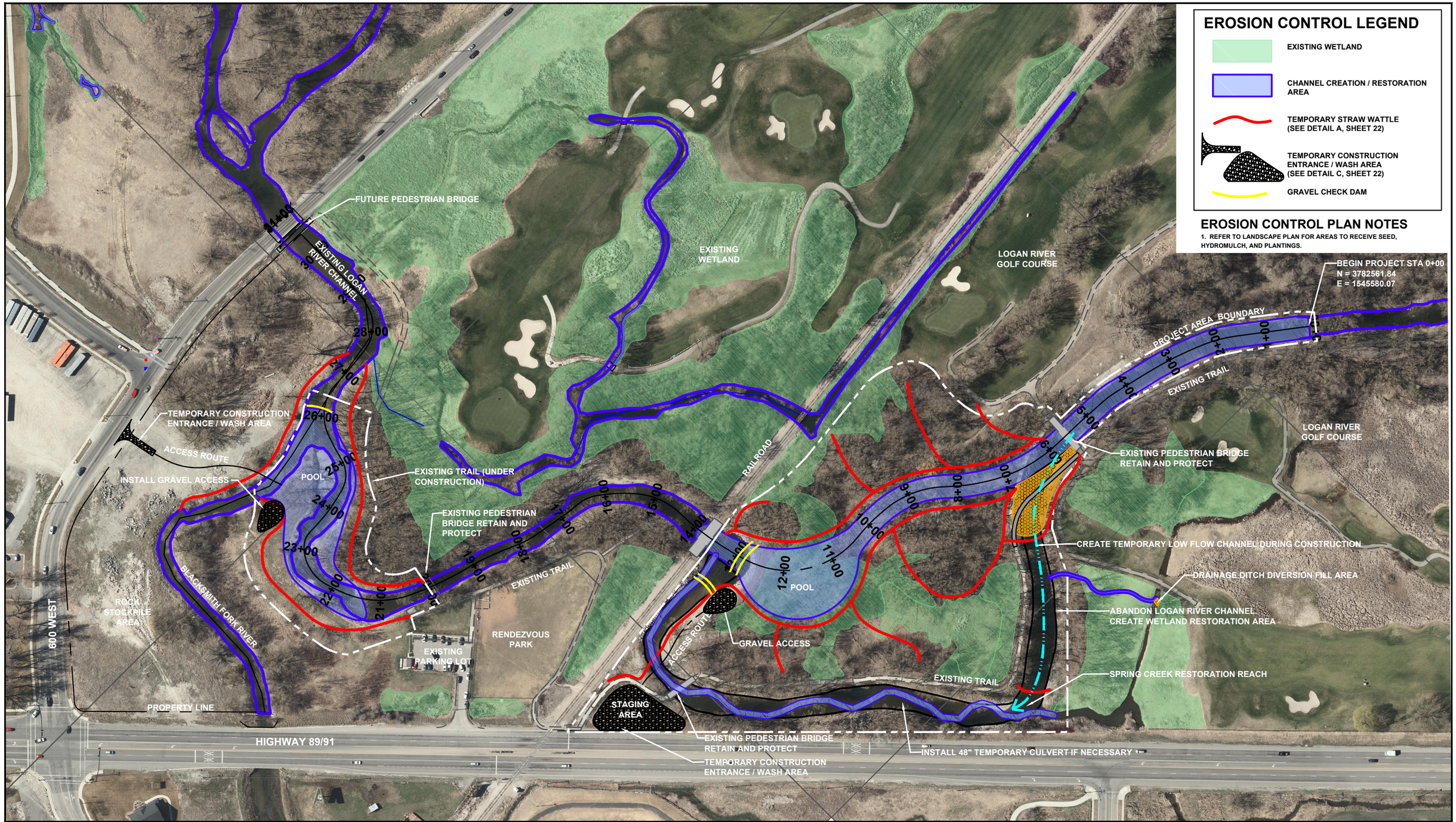
Sheet Title:
ROCK STRUCTURES PLAN

0 90 180 Feet

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 16



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Sheet Title:

EROSION CONTROL PLAN

0 90 180 Feet

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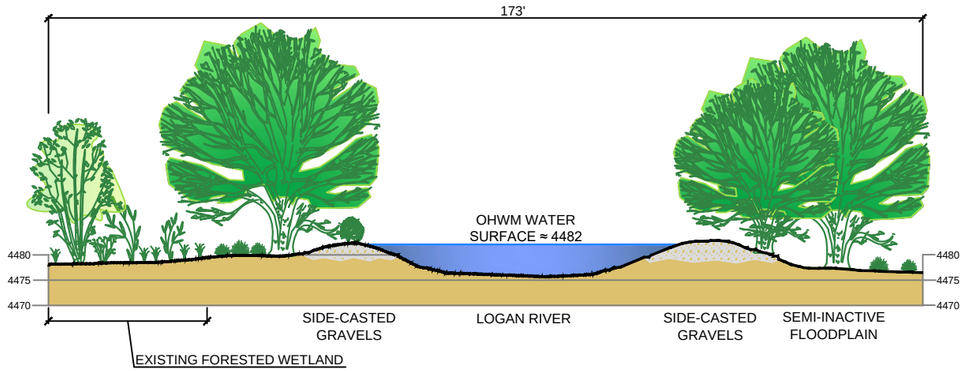
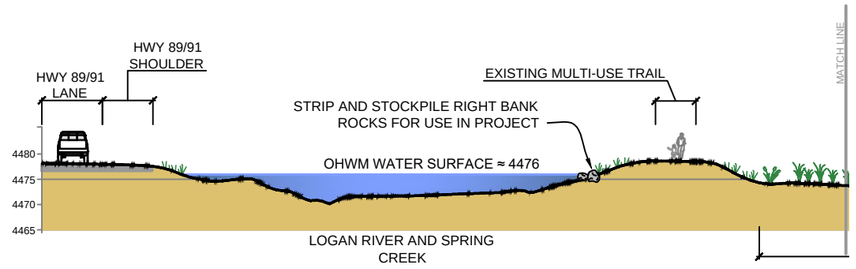
Sheet No. 17



1 EXISTING CONDITIONS



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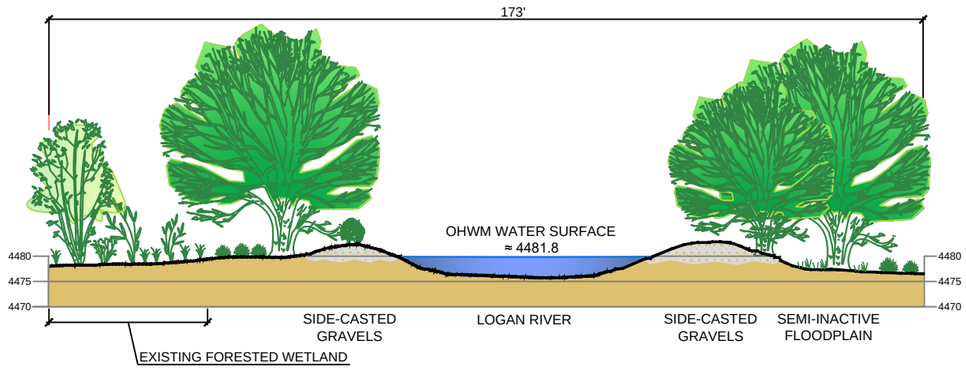

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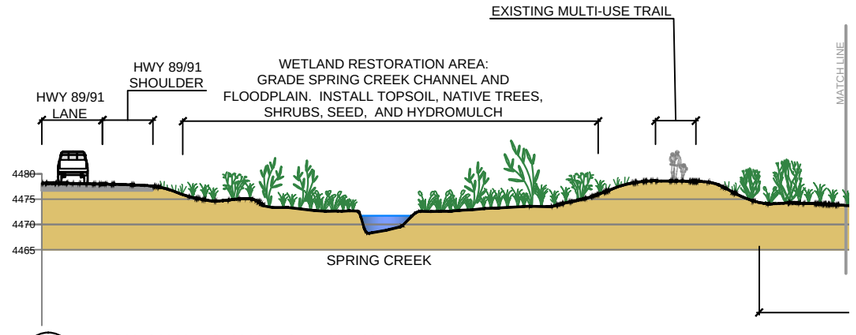

2 PROPOSED CONDITIONS

0 15 30 Feet

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Sheet Title:
CROSS SECTION 1 AND 2

Date: 07/03/2017
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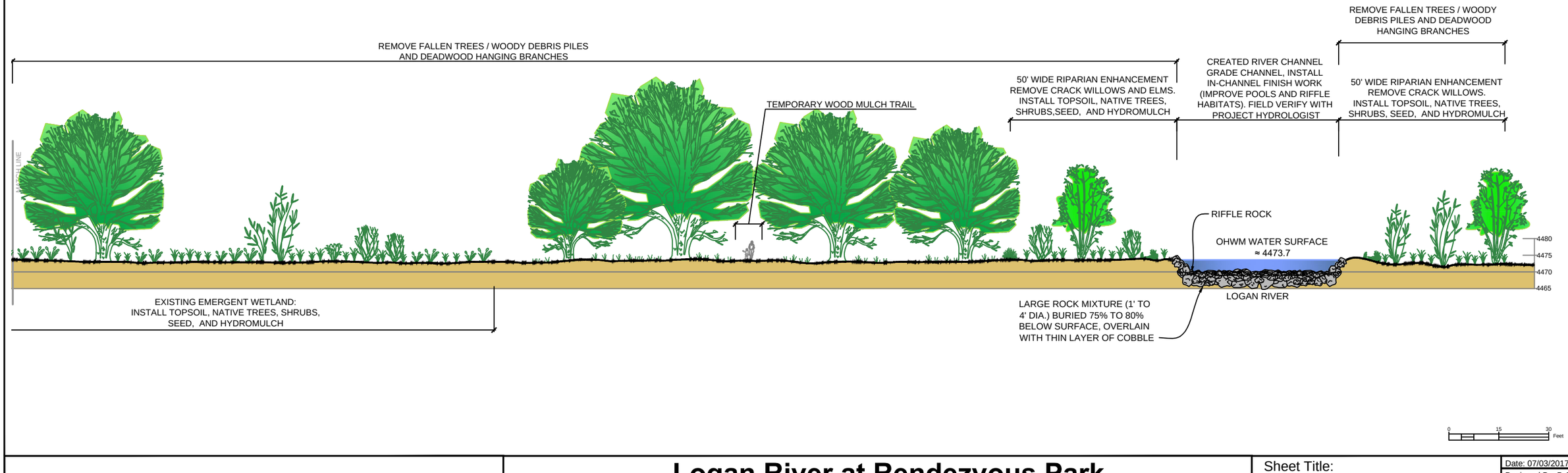
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 18



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Sheet Title:

CROSS SECTION 2 CONTINUED

Date: 07/03/2017
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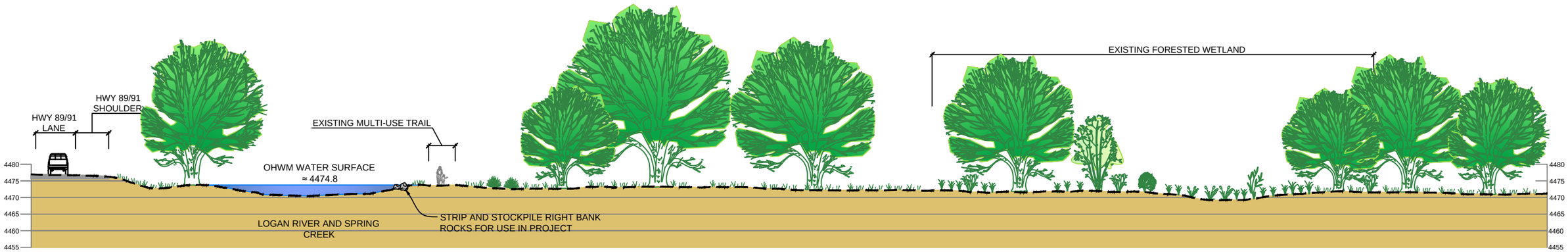
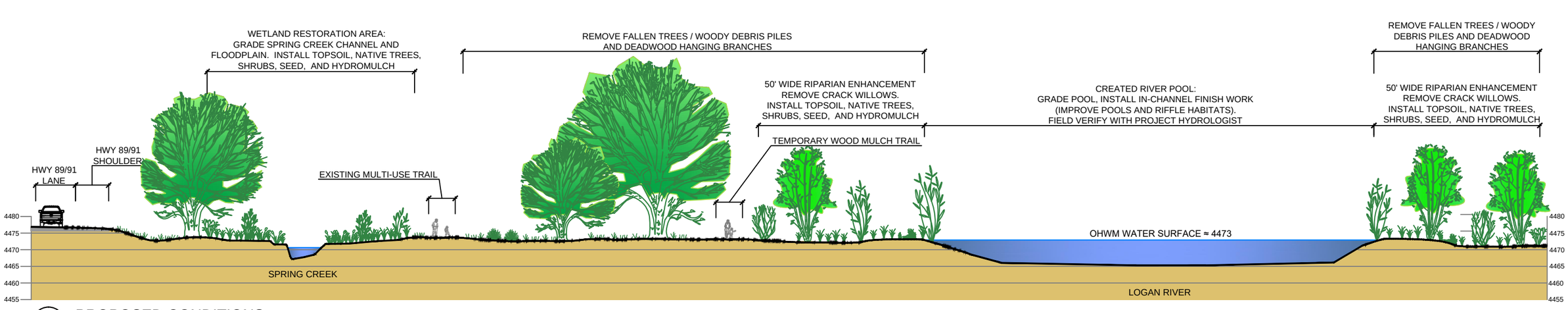
BIO-WEST PN: #1945.5
Sheet No. 19



3 EXISTING CONDITIONS



3 PROPOSED CONDITIONS

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Sheet Title:
CROSS SECTION 3

Date: 07/03/2017
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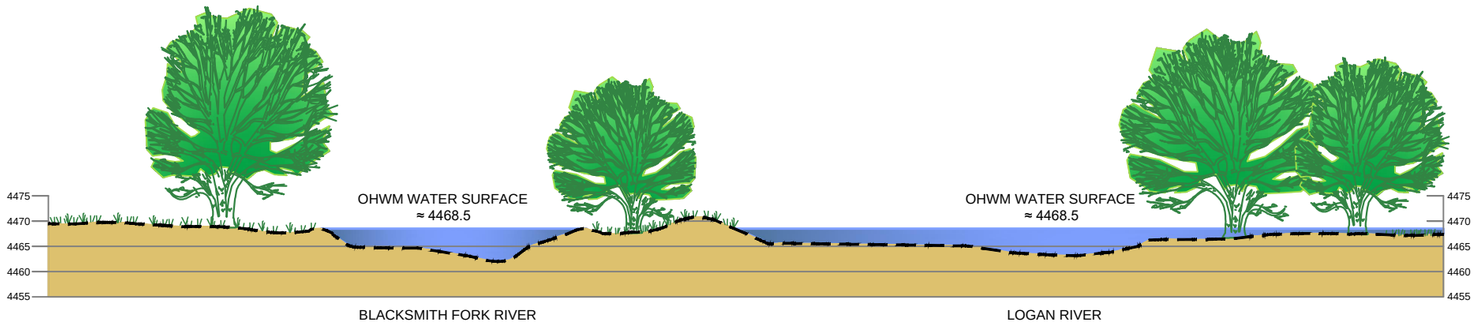
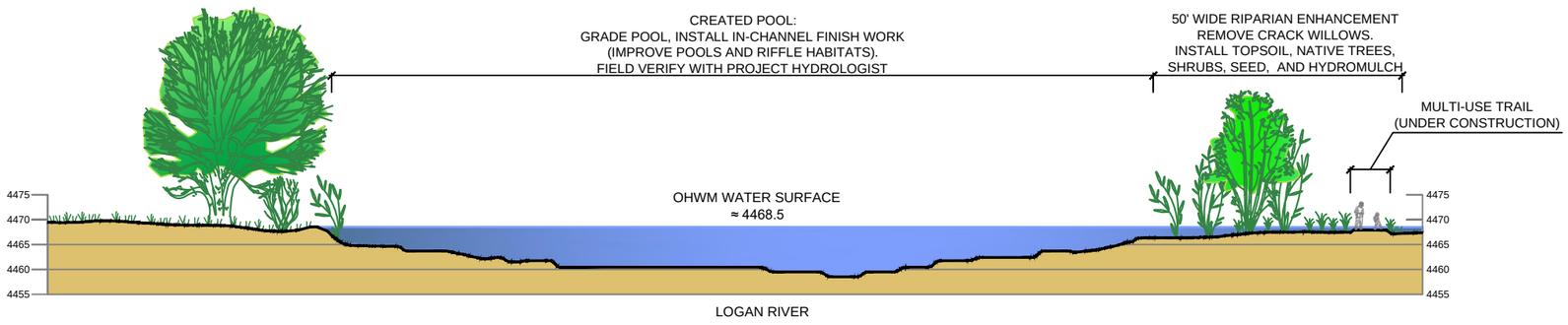
BIO-WEST PN: #1945.5
Sheet No. 20



4 EXISTING CONDITIONS



4 PROPOSED CONDITIONS

0 15 30 Feet

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Sheet Title:

CROSS SECTION 4

Date: 07/03/2017
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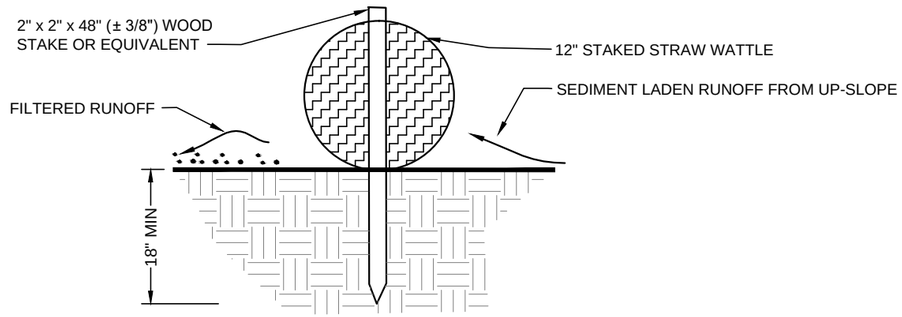
Drawn By: S.D.
BIO-WEST PN: #1945.5
Sheet No. 21

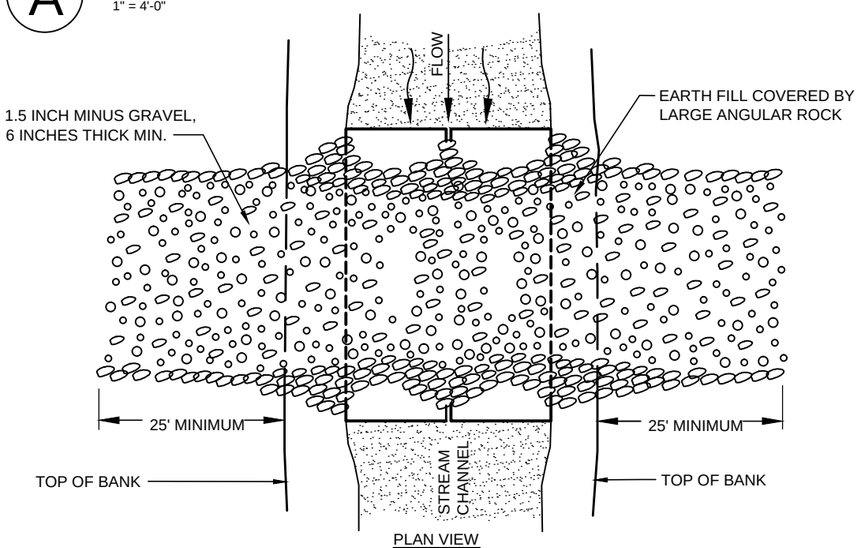
STRAW BALE BARRIER NOTES:

1. PLACE WATTLES IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT WATTLES TIGHTLY ABUTTING EACH OTHER.
2. FILL THE GAPS BETWEEN WATTLES WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE WATTLES.
3. STAKE WATTLES AT 4' MAX INTERVALS. PLACING THE END STAKES 6" MIN FROM END OF WATTLES.
4. USE CERTIFIED WEED FREE / SEED FREE STRAW.
5. REMOVE STRAW WATTLE BARRIERS WHEN THEY HAVE SERVED THEIR USEFULNESS, BUT NOT BEFORE THE UP-SLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.



A TEMPORARY STRAW WATTLE BARRIER

1" = 4'-0"



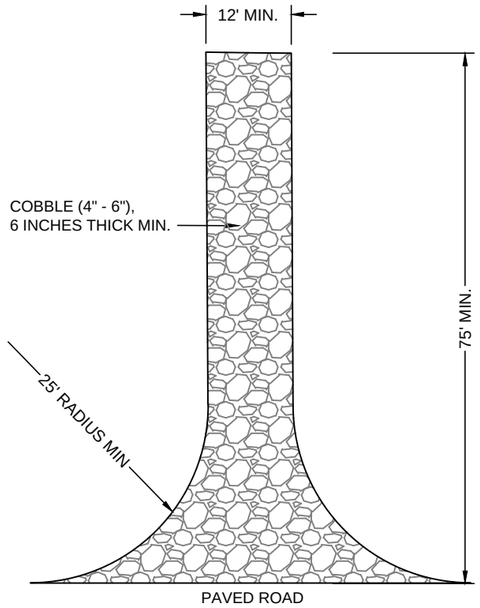
PLAN VIEW

B TEMPORARY STREAM CROSSING

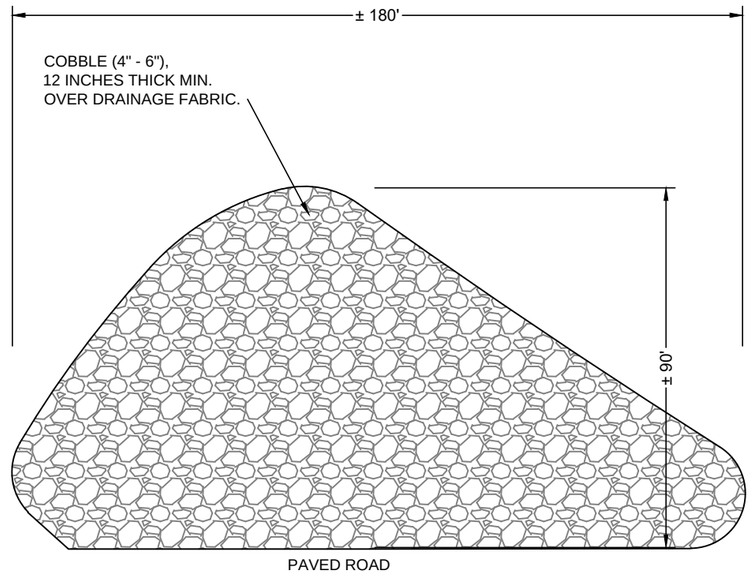
N.T.S.

TEMPORARY CONSTRUCTION ENTRANCE / WASH AREA NOTES:

1. MOW EXISTING VEGETATION AS NECESSARY BEFORE INSTALLING DRAINAGE FABRIC AND/OR GRAVEL.
2. COMPACT SUBGRADE.
3. INSPECT DAILY FOR LOSS OF COBBLE OR SEDIMENT BUILDUP.
4. PREVENT CONSTRUCTION SITE DIRT, MUD, AND ROCKS FROM BEING TRACKED ONTO ADJACENT ROADS.
5. REPAIR ENTRANCE AND REPLACE COBBLE AS REQUIRED TO MAINTAIN CONTROL IN GOOD WORKING CONDITION.
6. EXPAND STABILIZED AREA AS REQUIRED TO ACCOMMODATE TRAFFIC AND TO PREVENT EROSION AT DRIVEWAY.



PLAN VIEW: 600 WEST ENTRANCE



PLAN VIEW: HIGHWAY 89/91 ENTRANCE

C TEMPORARY CONSTRUCTION ENTRANCE / WASH AREA

N.T.S.

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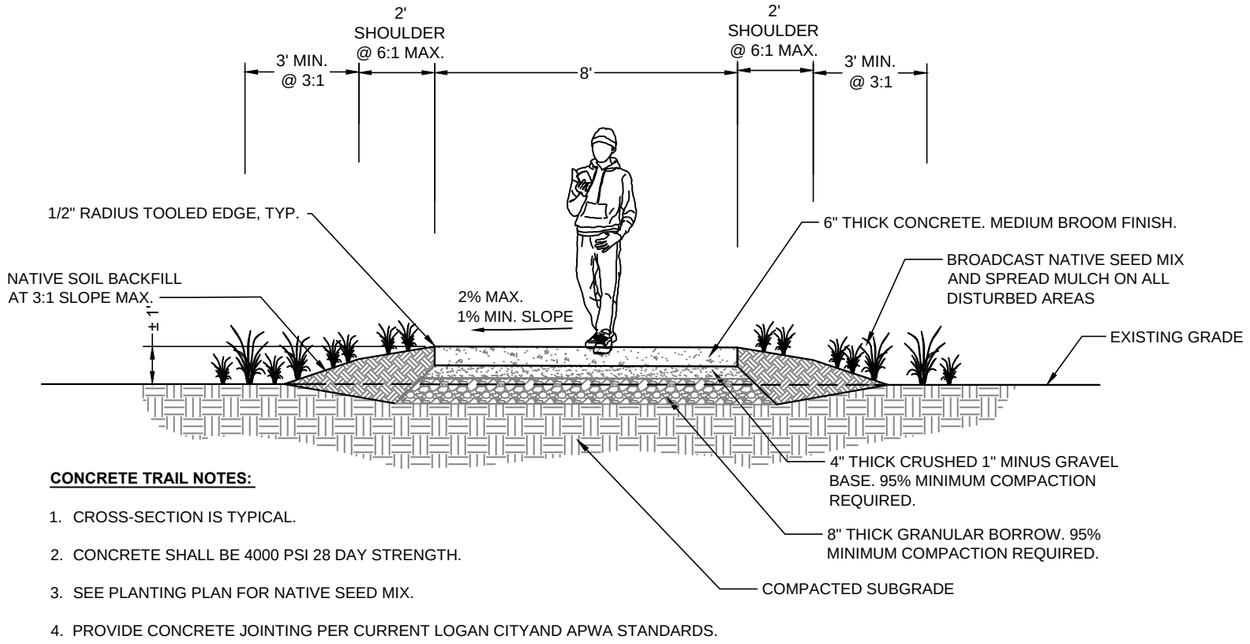
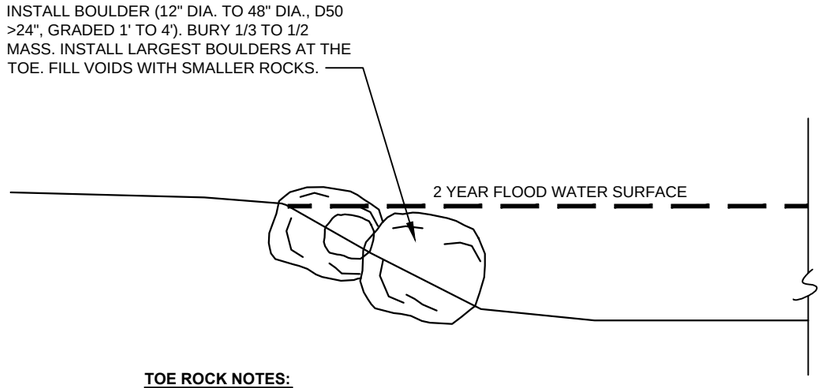


CONCRETE TRAIL NOTES:

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 CITYAND APWA STANDARDS.

A CONCRETE TRAIL

1" = 4'-0"

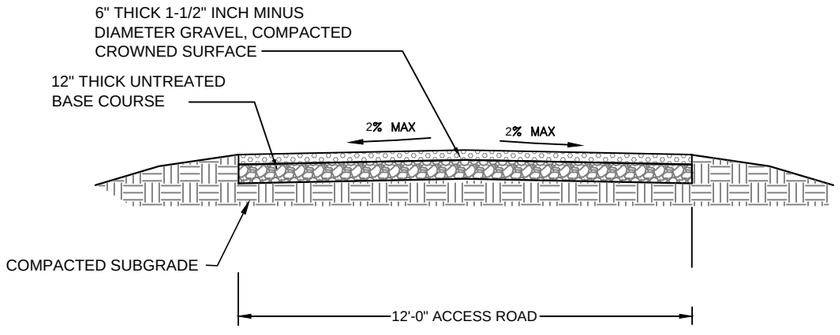


TOE ROCK NOTES:

1. SET ROCKS SO THEY SIT SECURELY AND ARE FITTED TOGETHER.
2. COORDINATE BOULDER PLACEMENT WITH PROJECT HYDROLOGIST.

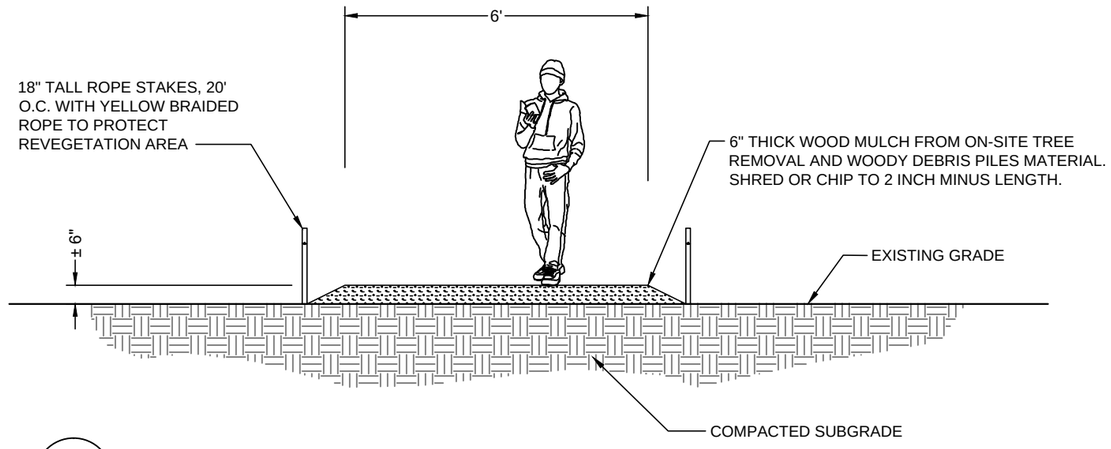
C TOE ROCK

1" = 4'-0"



B GRAVEL ACCESS ROAD / GRAVEL ACCESS

1" = 4'-0"



D TEMPORARY WOOD MULCH TRAIL

1" = 4'-0"

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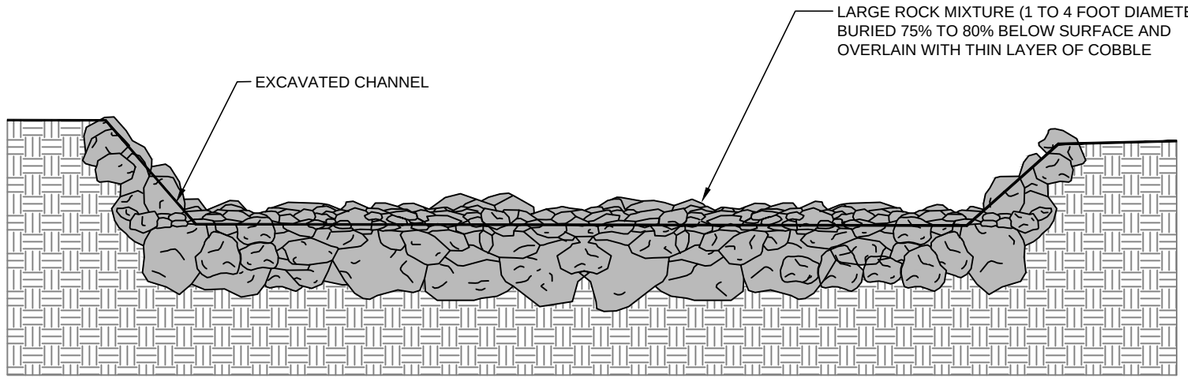
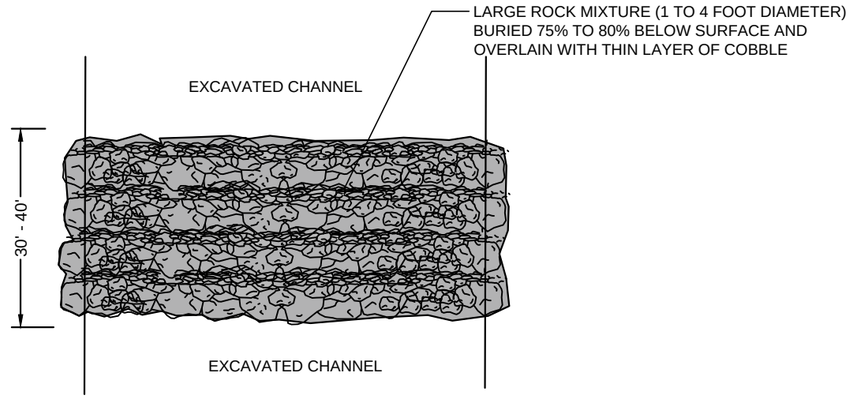


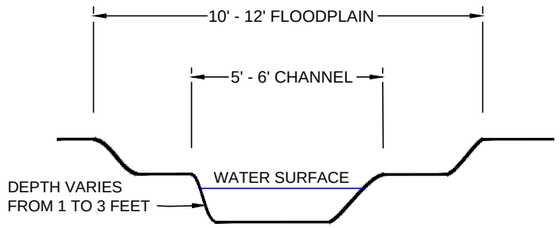
CROSS SECTION

A RIFFLE ROCK CLUSTER SECTION DETAIL

1" = 1'-0"

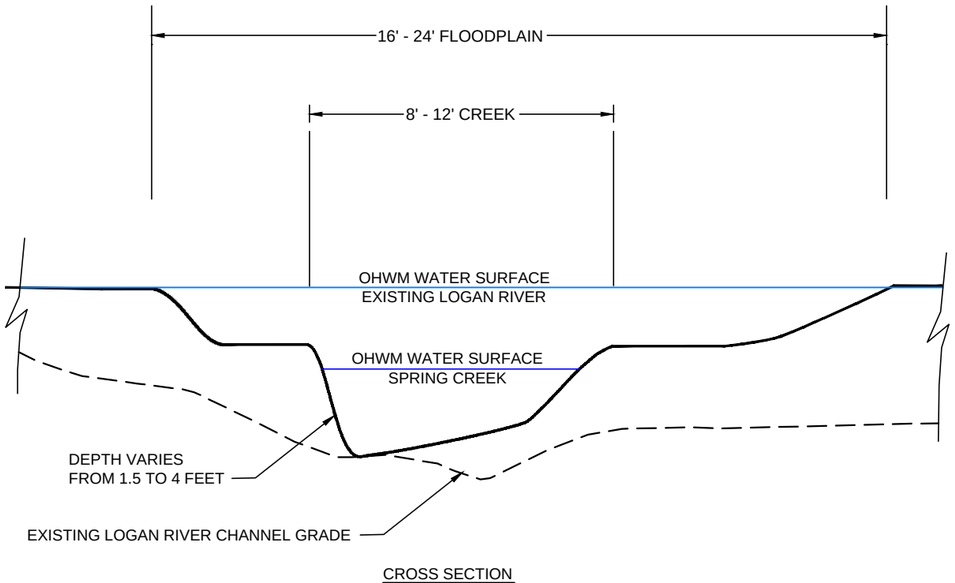


PLAN VIEW - NOT TO SCALE

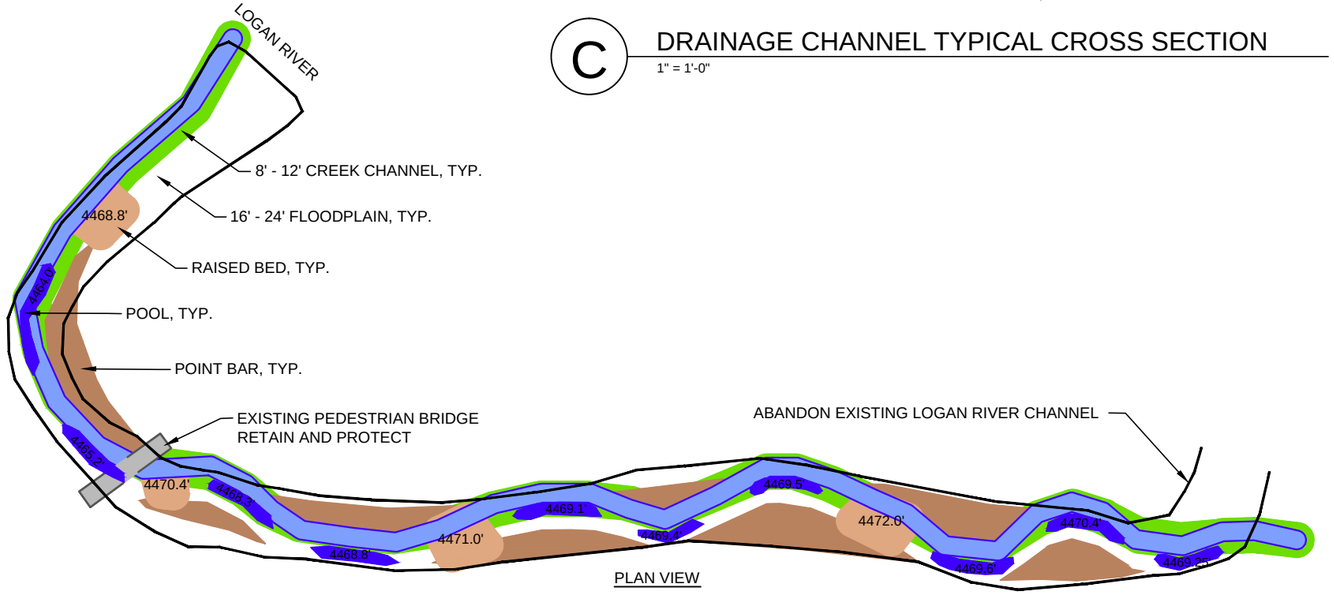


C DRAINAGE CHANNEL TYPICAL CROSS SECTION

1" = 1'-0"



CROSS SECTION



PLAN VIEW

D SPRING CREEK RESTORATION REACH

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Sheet Title:
CONSTRUCTION DETAILS

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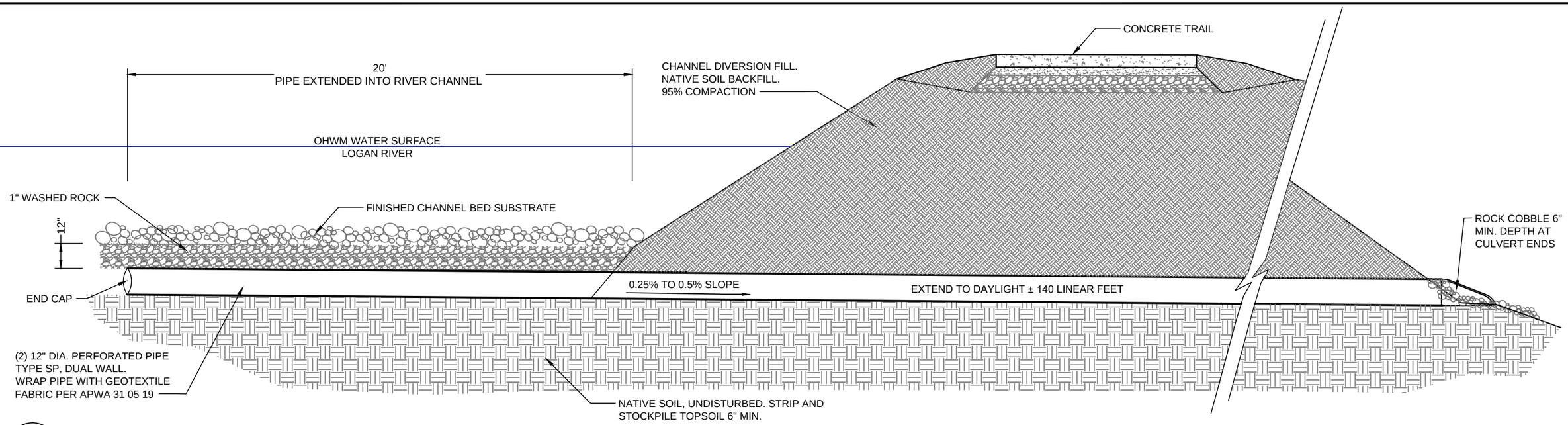
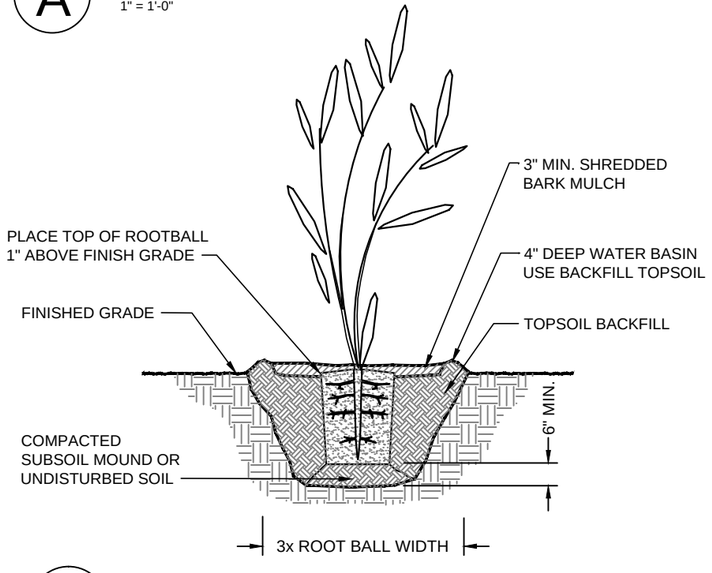
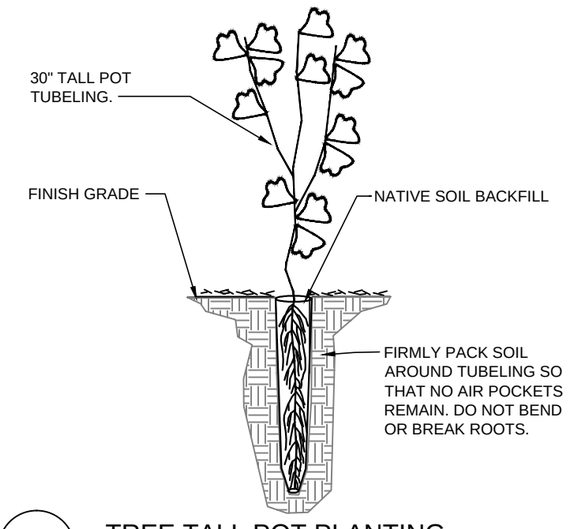


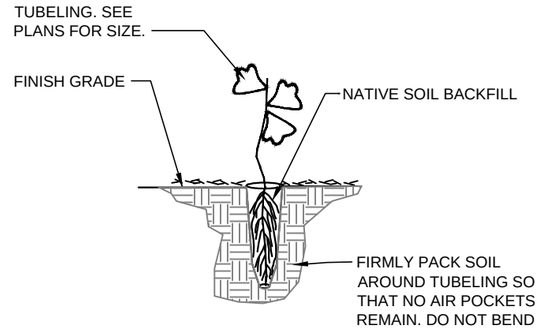
A WEEP PIPES
1" = 1'-0"



B SHRUB PLANTING (1 GALLON)
N.T.S.



C TREE TALL POT PLANTING
N.T.S.



D TUBELING PLANTING
N.T.S.

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LOGAN CITY UNITED IN SERVICE

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Logan River at Rendezvous Park
Channel and Floodplain Restoration
Logan, Utah

Sheet Title:
CONSTRUCTION DETAILS

Date: 07/03/2017
Designed By: D.O., T.A.
Drawn By: S.D.
BIO-WEST PN: #1945.5
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