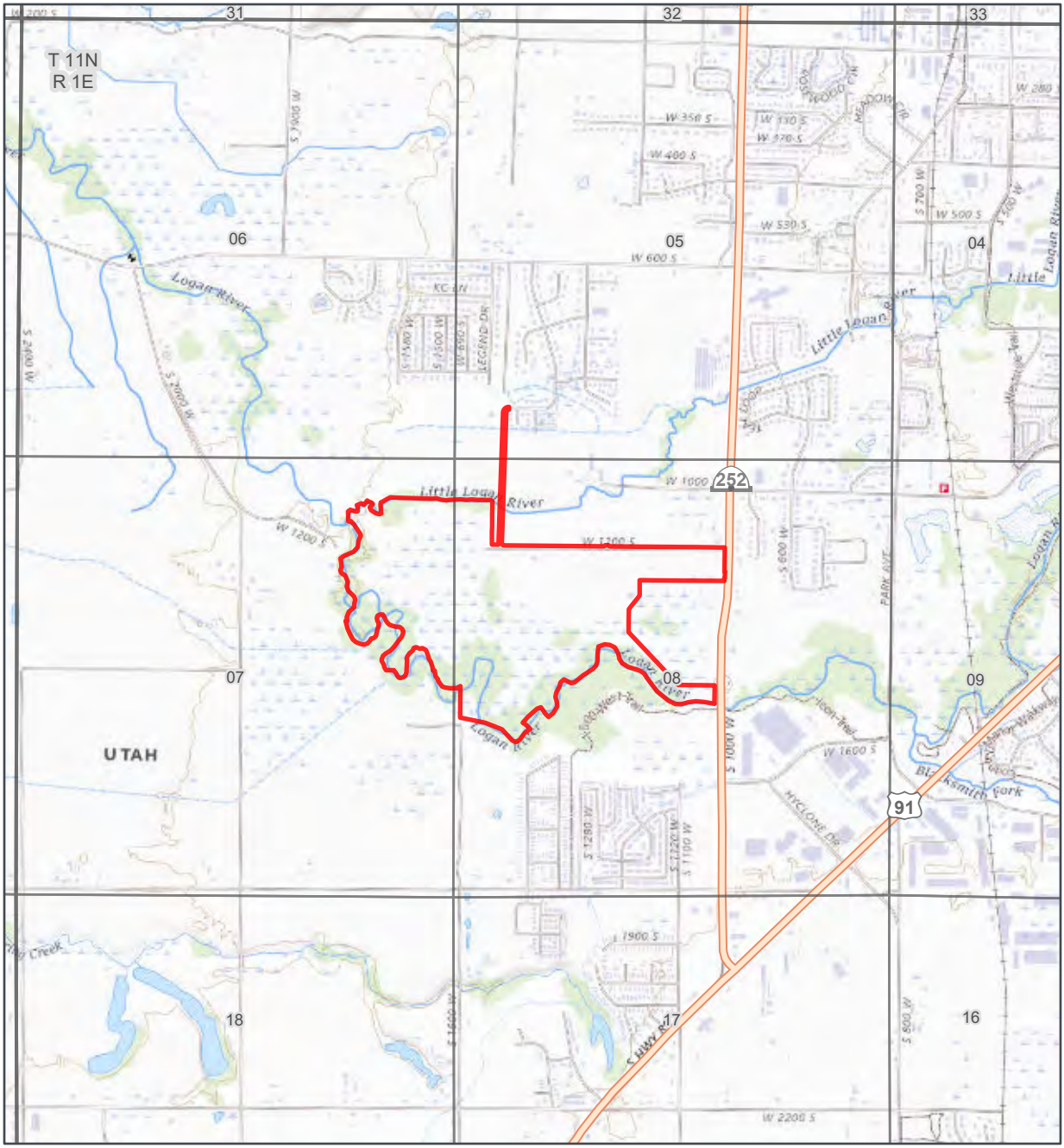

T 11N
R 1E
31
32
33
06
05
04
07
08
09
18
17
16
Logan River
Little Logan River
W 1000
252
W 1200 S
W 1300 S
S 1000 W
91
UTAH
W 1600 S
W 1900 S
W 2200 S
W 600 S
W 500 S
W 400 S
W 350 S
W 530 S
S 700 W
S 600 W
S 1600 W
S 1500 W
S 1400 W
S 1300 W
S 1200 W
S 1100 W
S 1000 W
S 900 W
S 800 W
S 500 W
S 400 W
W 280 S
W 200 S
W 110 S
W 170 S
W 890 S
W 900 S
W 1000 S
W 1100 S
W 1200 S
W 1300 S
W 1400 S
W 1500 S
W 1600 S
W 1700 S
W 1800 S
W 1900 S
W 2000 S
W 2100 S
W

WILLOW LAKES USACE PERMIT

Figure 7. Project Design with Impacts

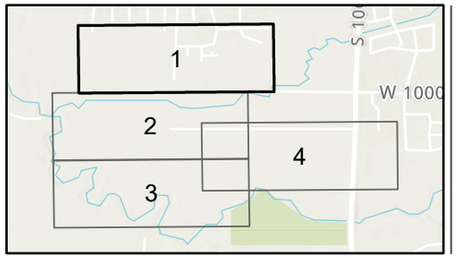
Map 1 of 4

Wetlands
- Channel
- Emergent

Wetland Impacts
- Permanent
- 01 Impact ID Map Label

Disturbance Area
- Pavement

Project Area



Cache County, UT
NAD 1983 UTM Zone 12N
111.8702°W 41.7153°N

Base Map: Esri World Imagery, accessed March 2022

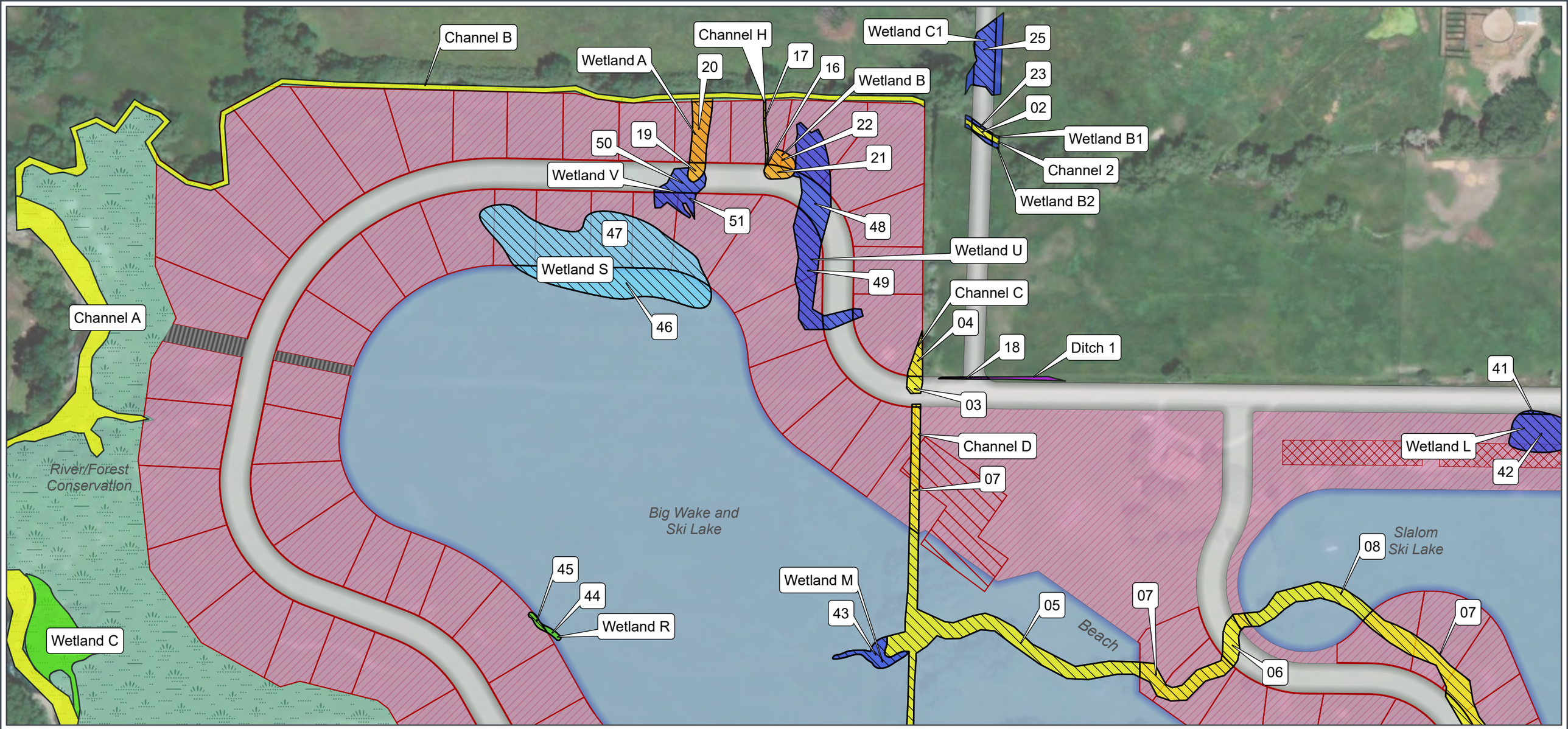
Updated: 3/4/2022
Project No. 68483
File:Impacts_Map

N

1:2,400

0 100 200 Feet
0 25 50 Meters

SWCA ENVIRONMENTAL CONSULTANTS



WILLOW LAKES USACE PERMIT

Figure 7. Project Design with Impacts

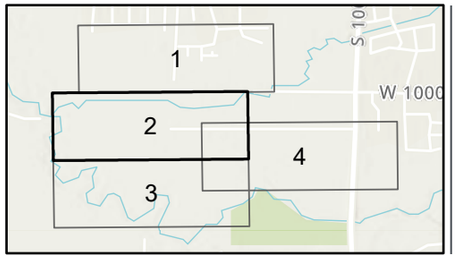
Map 2 of 4

SWCA ENVIRONMENTAL CONSULTANTS

Wetlands
- Bog/Fen
- Channel
- Ditch
- Emergent
- Forested
- Wet Meadow

Wetland Impacts
- Permanent
- 01 Impact ID Map Label

Disturbance Area
- Lakes
- Pavement
- Properties
- Lots
- Club House
- Condo Units
- Outfall
- Conservation Easement
- Project Area



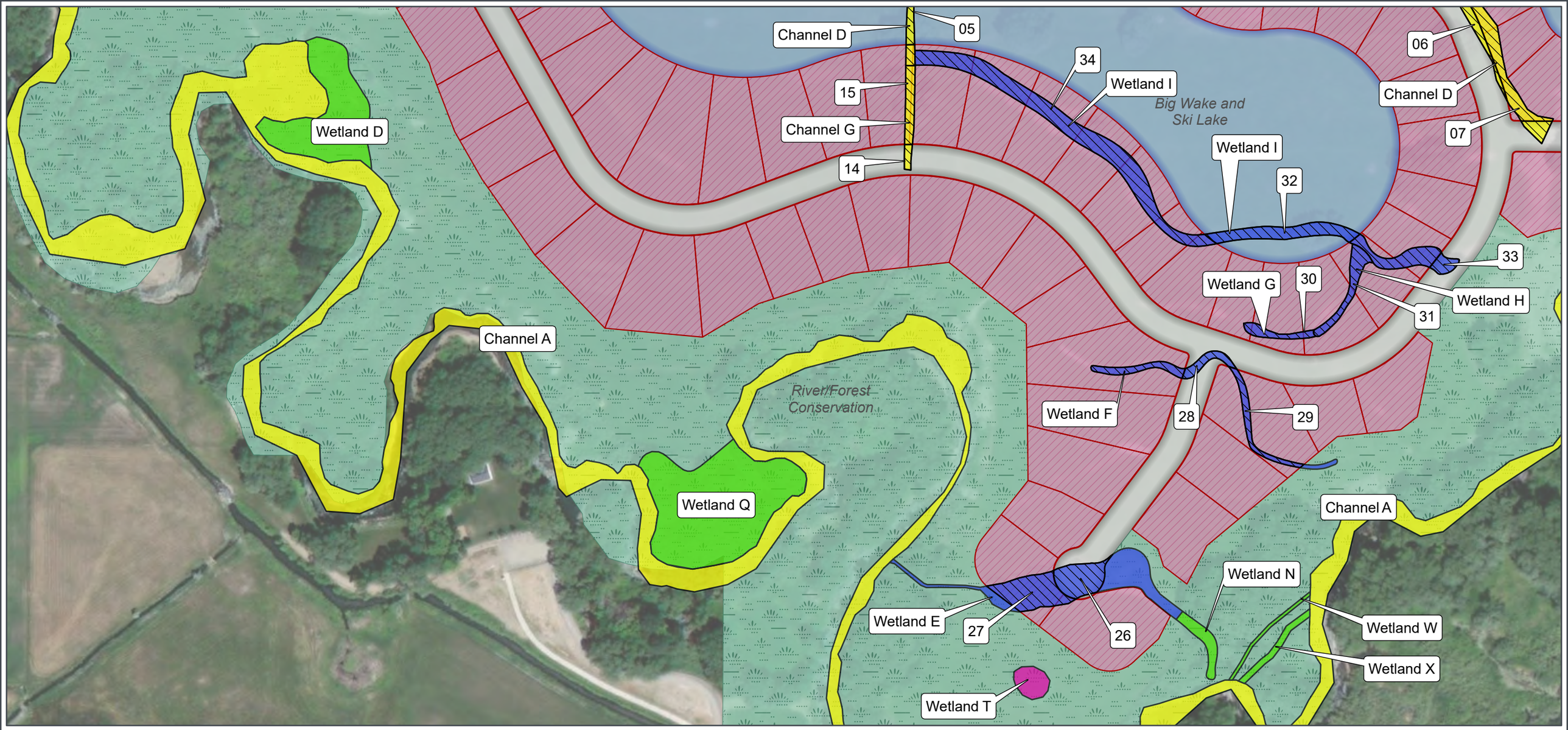
Cache County, UT
NAD 1983 UTM Zone 12N
111.8716°W 41.7115°N

N
1:2,400

Base Map: Esri World Imagery, accessed March 2022

Updated: 3/4/2022
Project No. 68483
File:Impacts_Map

0 100 200 Feet
0 25 50 Meters



WILLOW LAKES USACE PERMIT

Figure 7. Project Design with Impacts

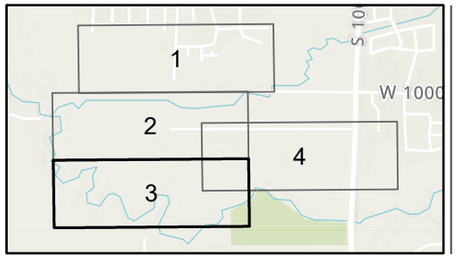
Map 3 of 4

Wetlands
- Channel
- Emergent
- Forested
- Scrub Shrub

Wetland Impacts
- Permanent
- 01 Impact ID Map Label

Disturbance Area
- Lakes
- Pavement
- Properties

- Lots
- Conservation Easement
- Project Area



Cache County, UT
NAD 1983 UTM Zone 12N
111.8716°W 41.7078°N

Base Map: Esri World Imagery, accessed March 2022

Updated: 3/4/2022
Project No. 68483
File:Impacts_Map

N
1:2,400

0 100 200 Feet
0 25 50 Meters

SWCA
ENVIRONMENTAL CONSULTANTS

WILLOW LAKES USACE PERMIT

Figure 7. Project Design with Impacts

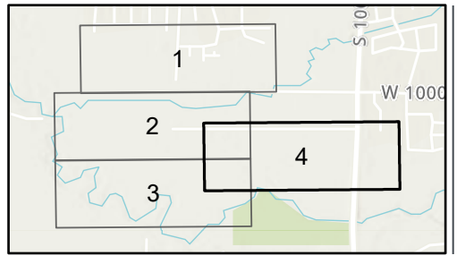
Map 4 of 4

Wetlands
- Channel
- Emergent
- Forested

Wetland Impacts
- Permanent
- Temporary
- 01 Impact ID Map Label

Disturbance Area
- Lakes
- Pavement
- Properties

- Lots
- Condo Units
- Conservation Easement
- Project Area



Cache County, UT
NAD 1983 UTM Zone 12N
111.8633°W 41.7098°N

N

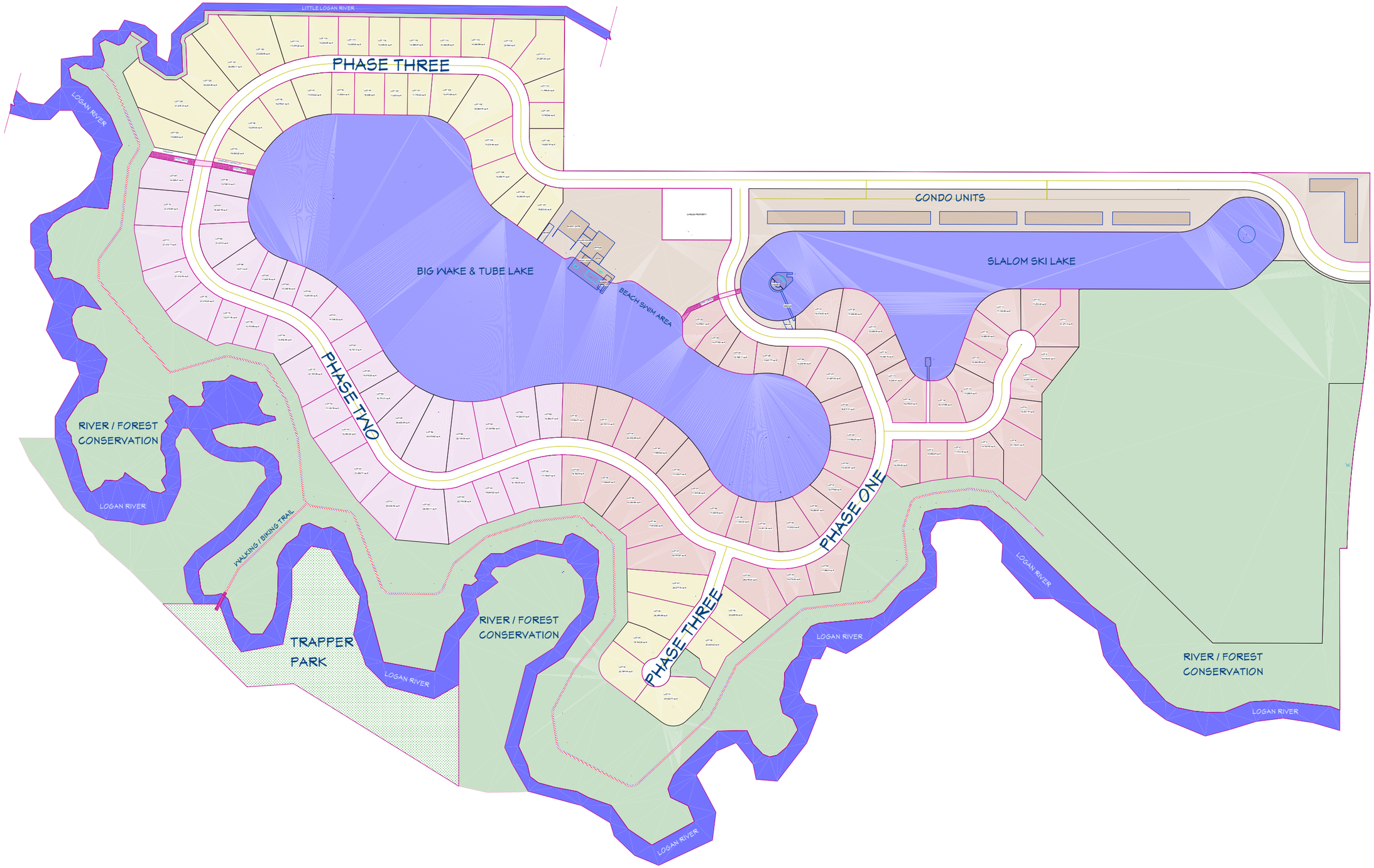
1:2,400

Base Map: Esri World Imagery, accessed March 2022

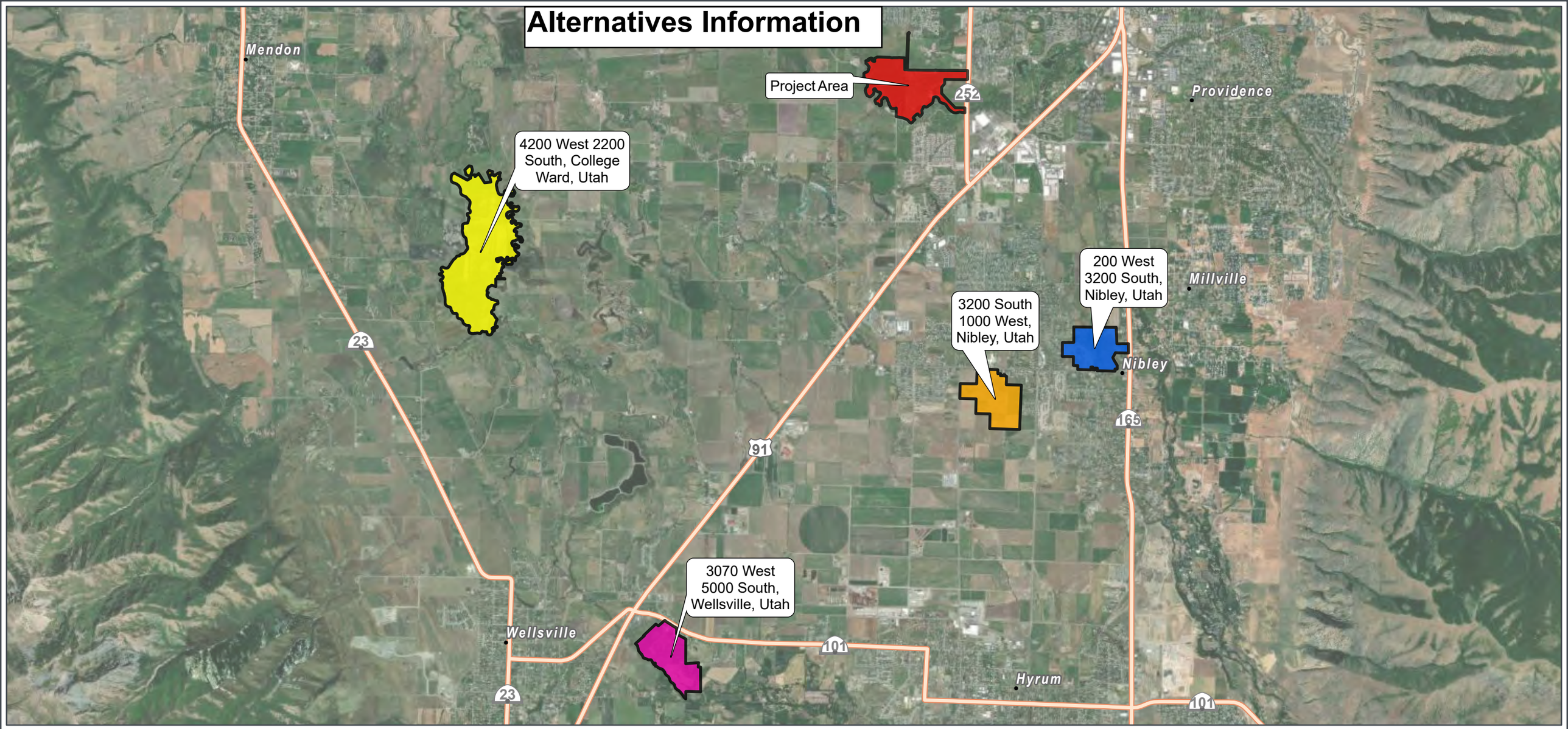
Updated: 3/4/2022
Project No. 68483
File:Impacts_Map

0 100 200 Feet
0 25 50 Meters

SWCA ENVIRONMENTAL CONSULTANTS


LITTLE LOGAN RIVER
PHASE THREE
LOGAN RIVER
CONDO UNITS
BIG WAKE & TUBE LAKE
SLALOM SKI LAKE
BEACH SWIM AREA
PHASE TWO
PHASE ONE
PHASE THREE
RIVER / FOREST
CONSERVATION
LOGAN RIVER
WALKING / BIKING TRAIL
TRAPPER
PARK
LOGAN RIVER
RIVER / FOREST
CONSERVATION
LOGAN RIVER
LOGAN RIVER
RIVER / FOREST
CONSERVATION
LOGAN RIVER
LOGAN RIVER

Alternatives Information



WILLOW LAKES USACE PERMIT

Off-site Alternatives Location Map

Project Area

Off-site Alternatives

- 200 West 3200 South, Nibley, Utah
- 3070 West 5000 South, Wellsville, Utah
- 3200 South 1000 West, Nibley, Utah
- 4200 West 2200 South, College Ward, Utah

Cache County, UT
NAD 1983 UTM Zone 12N
111.8899°W 41.675°N

N

1:56,000

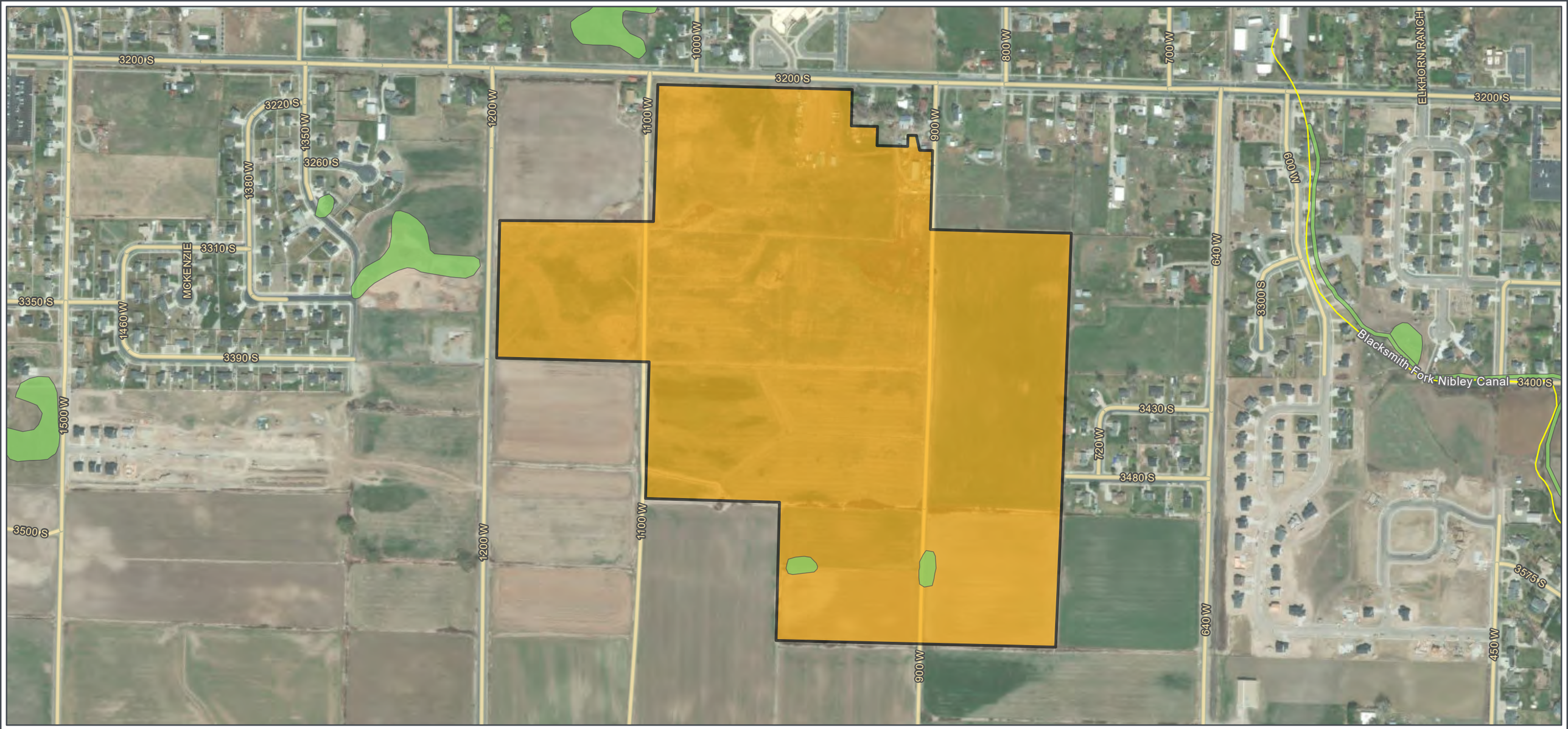
Utah

Base Map: Esri World Imagery, accessed March 2022

Updated: 3/11/2022
Project No. 68483
File:Off-site_Alts

0 2,000 4,000 Feet
0 600 1,200 Meters

SWCA ENVIRONMENTAL CONSULTANTS



WILLOW LAKES USACE PERMIT

Alternatives
Map 1 of 4

Off-site Alternatives

3200 South 1000 West, Nibley, Utah

National Hydrography Dataset

Canal/Ditch

National Wetlands Inventory

PEM

Cache County, UT
NAD 1983 UTM Zone 12N
111.8561°W 41.6712°N

N

1:6,000

Utah

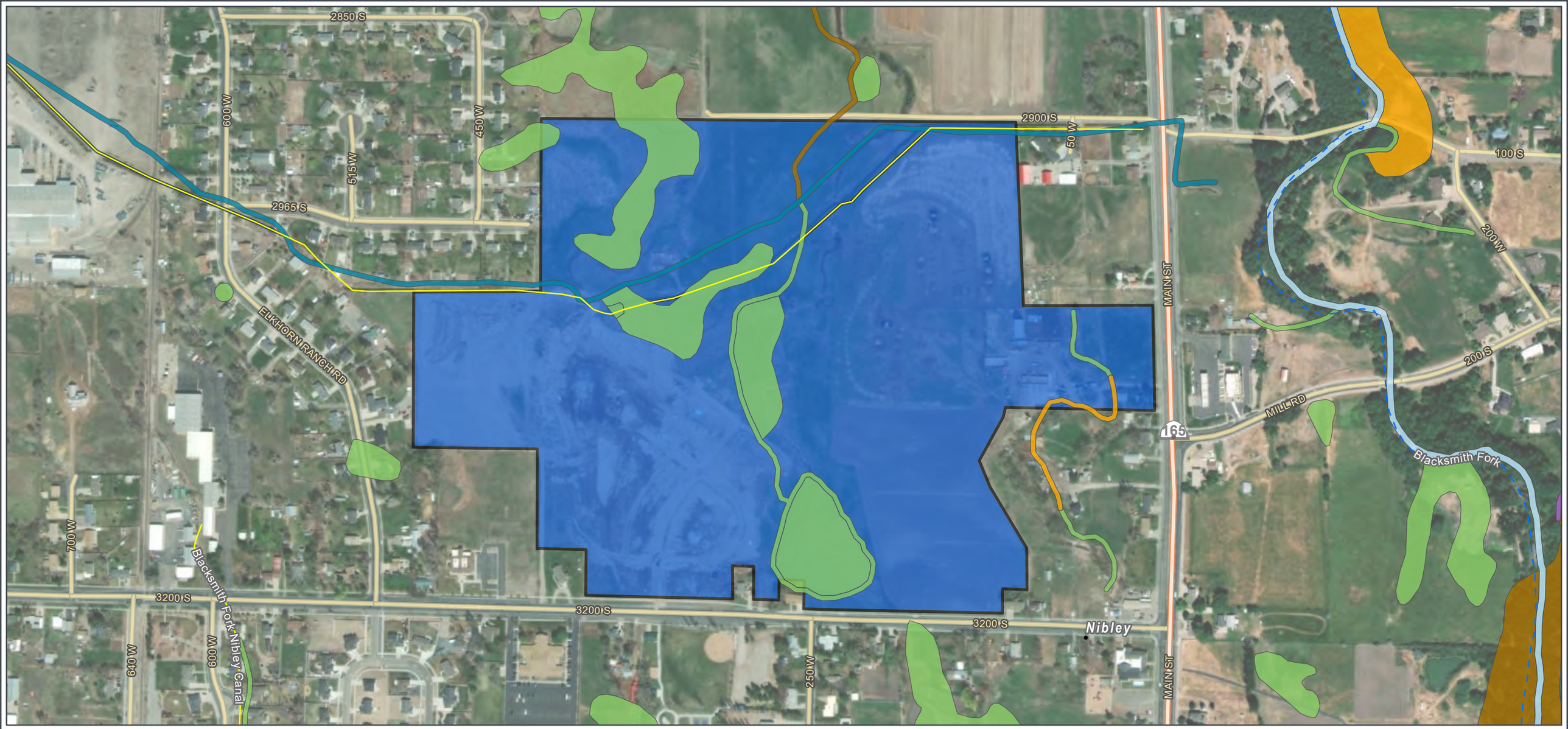
Base Map: Esri World Imagery, accessed March 2022

Updated: 3/11/2022
Project No. 68483
File:Off-site_Alts1

0 240 480 Feet

0 60 120 Meters

SWCA
ENVIRONMENTAL CONSULTANTS



WILLOW LAKES USACE PERMIT

Alternatives
Map 2 of 4

SWCA
ENVIRONMENTAL CONSULTANTS

Off-site Alternatives
- 200 West 3200 South, Nibley, Utah

National Hydrography Dataset
- Canal/Ditch
- Stream/River - Intermittent

National Wetlands Inventory
- PAB
- PEM
- PFO
- PSS
- R2
- R4
- R5

Cache County, UT
NAD 1983 UTM Zone 12N
111.839°W 41.6775°N

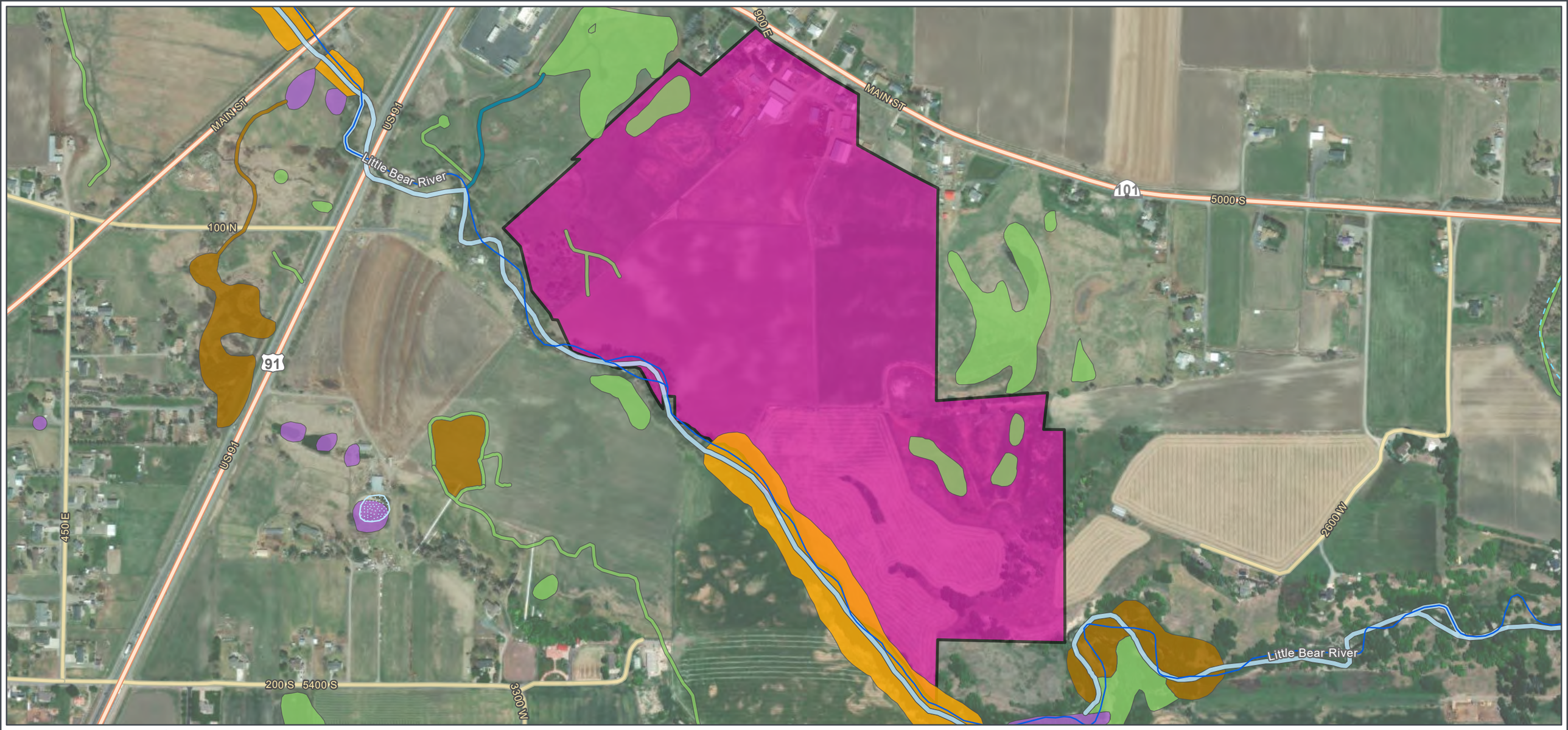
N
1:5,000

Utah

Base Map: Esri World Imagery, accessed March 2022

Updated: 3/11/2022
Project No. 68483
File:Off-site_Alts2

0 200 400 Feet
0 50 100 Meters



WILLOW LAKES USACE PERMIT

Alternatives
Map 3 of 4

Off-site Alternatives

- 3070 West 5000 South, Wellsville, Utah

National Hydrography Dataset

- Stream/River - Ephemeral
- Stream/River - Perennial
- Waterbody

National Wetlands Inventory

- PAB
- PEM
- PFO
- PSS
- R2
- R4

Cache County, UT
NAD 1983 UTM Zone 12N
111.9084°W 41.6389°N

N
1:6,500

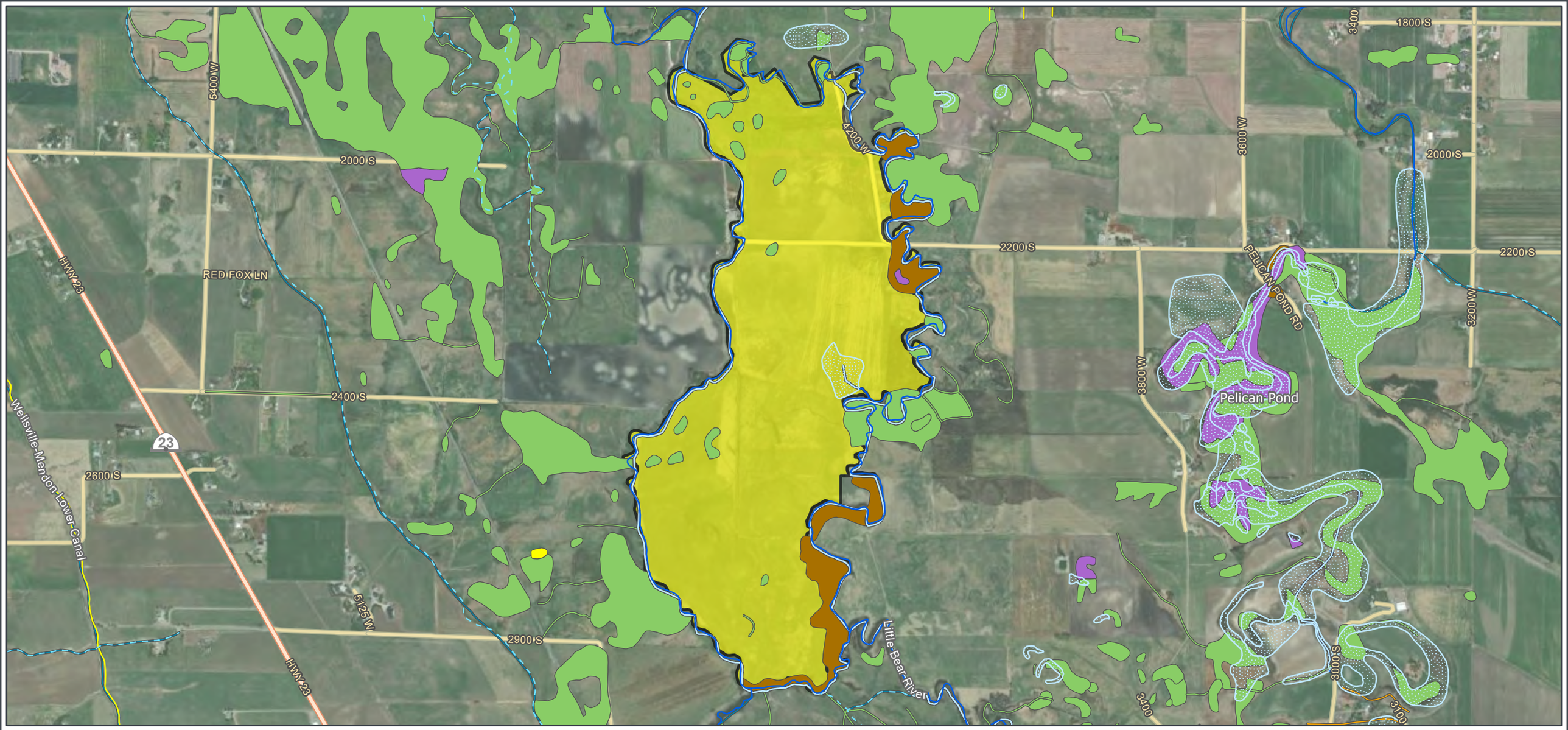
Utah

Base Map: Esri World Imagery, accessed March 2022

Updated: 3/11/2022
Project No. 68483
File:Off-site_Alts3

0 270 540 Feet
0 60 120 Meters

SWCA
ENVIRONMENTAL CONSULTANTS



WILLOW LAKES USACE PERMIT

Alternatives
Map 4 of 4

SWCA
ENVIRONMENTAL CONSULTANTS

Off-site Alternatives

- 4200 West 2200 South, College Ward, Utah

National Hydrography Dataset

- Artificial Path/Connector
- Canal/Ditch
- Stream/River - Ephemeral
- Stream/River - Perennial
- Waterbody

National Wetlands Inventory

- PAB
- PEM
- PFO
- PSS
- PUS
- R2
- R4
- R5

Cache County, UT
NAD 1983 UTM Zone 12N
111.9396°W 41.6888°N

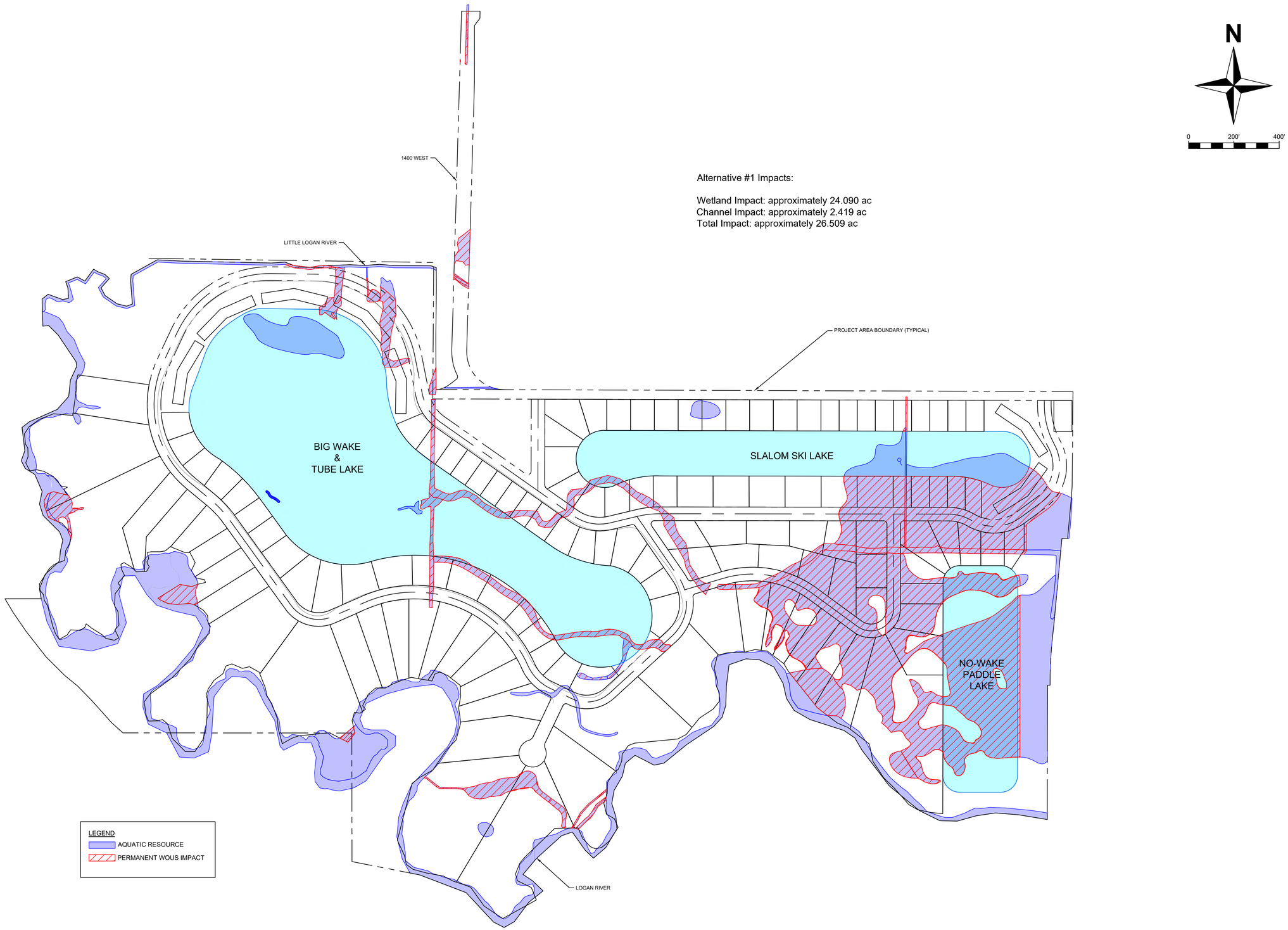
N
1:14,500

Utah

Base Map: Esri World Imagery, accessed March 2022

Updated: 3/11/2022
Project No. 68483
File:Off-site_Alts4

0 600 1,200 Feet
0 150 300 Meters



Alternative #1 Impacts:

Wetland Impact: approximately 24.090 ac
Channel Impact: approximately 2.419 ac
Total Impact: approximately 26.509 ac

civilsolutionsgroup inc.
CACHE VALLEY | P: 435.213.3762
SALT LAKE | P: 801.216.3192
UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net

Willow Lakes Subdivision

Logan, Cache County, Utah
Alternative 1

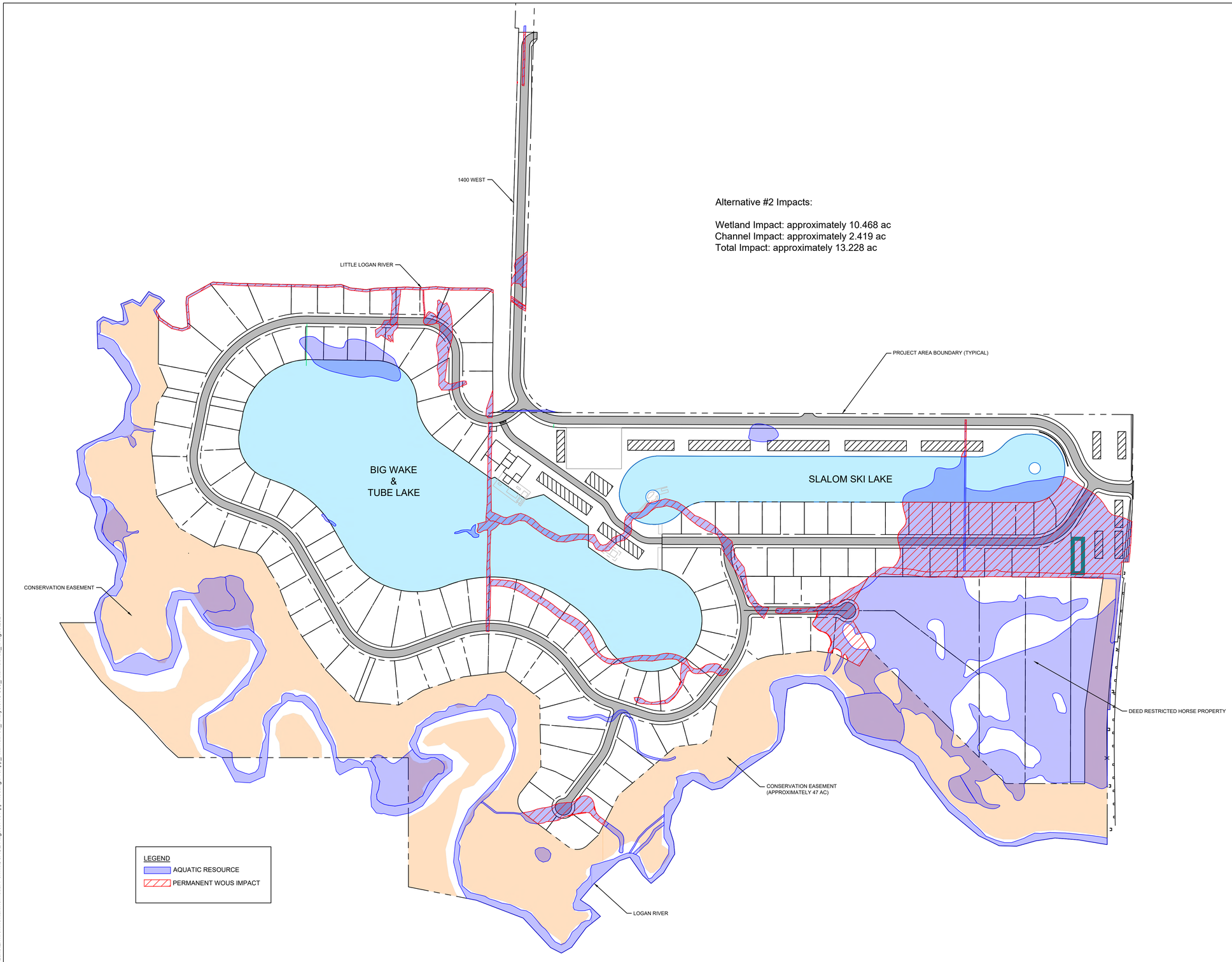
MARK:	DATE:	DESCRIPTION:

PROJECT #: 19-383
DRAWN BY: C. KLINE
PROJECT MANAGER: M. TAYLOR
ISSUED: 8/4/2021

8/4/2021

ALTERNATIVE #1

P:\2019\19-383 Water Ski Lake\Environmental\Individual Permit\USACE August Pre App Meeting\PreApp_Alternatives_Analysis\19-383_Alternative1_3August2021



Alternative #2 Impacts:

Wetland Impact: approximately 10.468 ac
Channel Impact: approximately 2.419 ac
Total Impact: approximately 13.228 ac

civilsolutionsgroup inc.
CACHE VALLEY | P: 435.213.3762
SALT LAKE | P: 801.216.3192
UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net

Willow Lakes Subdivision

Logan, Cache County, Utah
Alternative 2

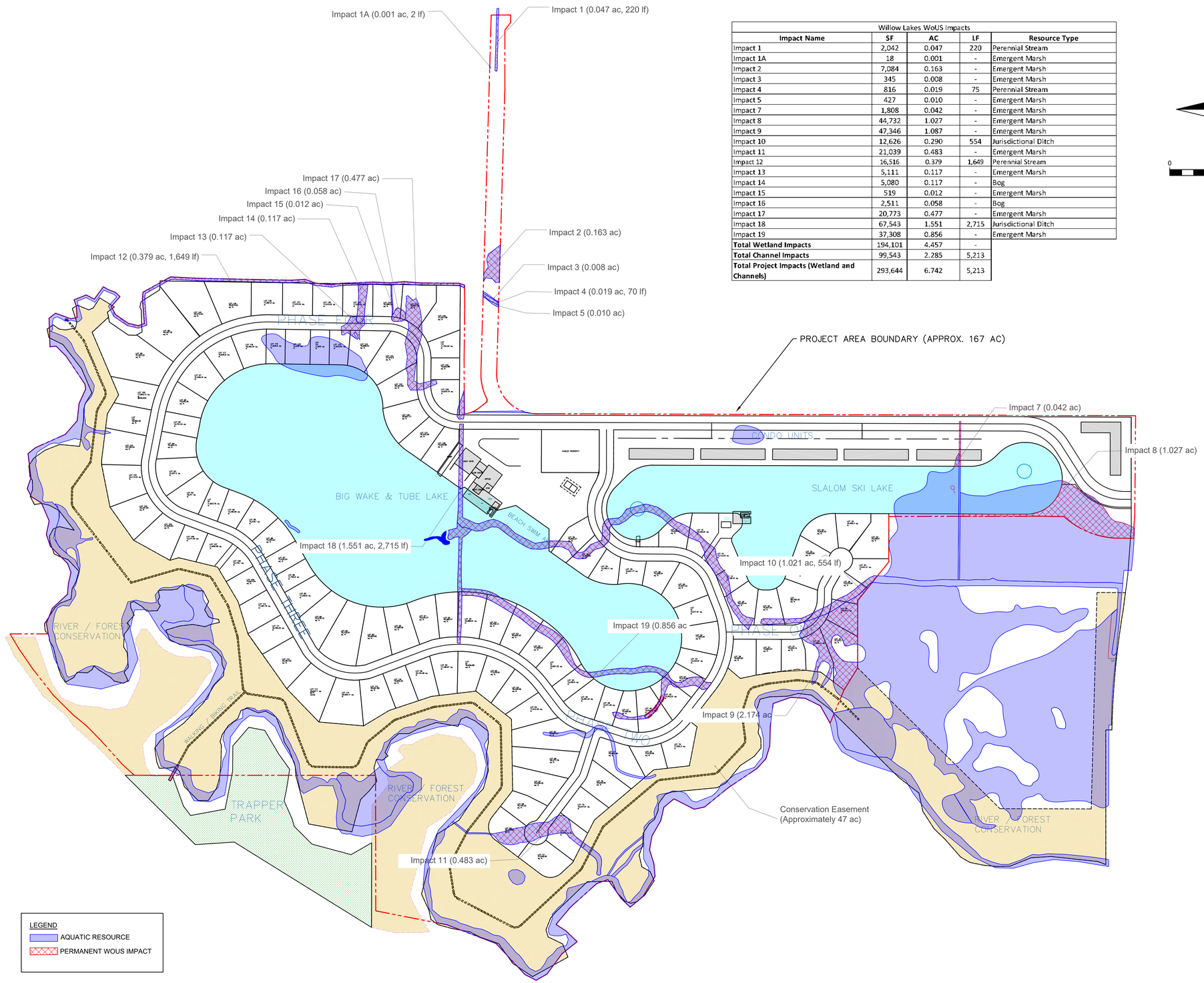
MARK:	DATE:	DESCRIPTION:

PROJECT #: 19-383
DRAWN BY: C. KLINE
PROJECT MANAGER: M. TAYLOR
ISSUED: 8/4/2021

8/4/2021

ALTERNATIVE #2

P:\2019\19-383 Water Ski Lake\Environmental\Individual Permit\USACE August Pre App Meeting\PreApp_Alternatives_Analysis\19-383_Alternative2_4August2021



Willow Lakes WoUS Impacts				
Impact Name	**SF**	**AC**	**LF**	**Resource Type**
Impact 1	2,042	0.047	220	Perennial Stream
Impact 1A	18	0.001	-	Emergent Marsh
Impact 2	7,084	0.163	-	Emergent Marsh
Impact 3	345	0.008	-	Emergent Marsh
Impact 4	816	0.019	75	Perennial Stream
Impact 5	427	0.010	-	Emergent Marsh
Impact 7	1,808	0.042	-	Emergent Marsh
Impact 8	44,732	1.027	-	Emergent Marsh
Impact 9	47,346	1.087	-	Emergent Marsh
Impact 10	12,626	0.290	554	Jurisdictional Ditch
Impact 11	21,039	0.483	-	Emergent Marsh
Impact 12	16,516	0.379	1,649	Perennial Stream
Impact 13	5,111	0.117	-	Emergent Marsh
Impact 14	5,080	0.117	-	Bog
Impact 15	519	0.012	-	Emergent Marsh
Impact 16	2,511	0.058	-	Bog
Impact 17	20,773	0.477	-	Emergent Marsh
Impact 18	67,543	1.551	2,715	Jurisdictional Ditch
Impact 19	37,308	0.856	-	Emergent Marsh
Total Wetland Impacts	194,101	4.457	-	
Total Channel Impacts	99,543	2.285	5,213	
Total Project Impacts (Wetland and Channels)	293,644	6.742	5,213	

N

0 200' 400'

civilsolutionsgroup inc.
CACHE VALLEY | P: 435.213.3762
SALT LAKE | P: 801.216.3192
UTAH VALLEY | P: 801.874.1432
info@civilsolutionsgroup.net
www.civilsolutionsgroup.net

Willow Lakes Subdivison
Logan, Cache County, Utah
Alternative 3

MARK:	DATE:	DESCRIPTION:

PROJECT #:	19-383
DRAWN BY:	C. KLINE
PROJECT MANAGER:	M. TAYLOR
ISSUED:	8/4/2021

8/4/2021

ALTERNATIVE #3