

Table of Contents

Thornton Water Project - Larimer County 1041 Permit Application

Volume 1 of 2

Cover	
Cover Letter	
Table of Contents	II
Thornton Water Project Acronyms and Abbreviations	VII
Executive Summary	ES-1
Introduction	1-1
Section 1 Application Form	1-1
Section 2 Project Description	2-1
Section 3 Vicinity Maps.....	3-1
Section 4 Site Inventory Maps.....	4-1
Section 5 1041 Permit Site Maps.....	5-1
Section 6 Reduced 1041 Site Permit Maps	6-1
Section 7 Legal Description	7-1
Section 8 Technical Reports	8-1
8.a. Wetland Mitigation Plan	8.A-1
8.b. Wildlife Conservation Plan	8.B-1
8.c. Natural Hazard Mitigation Plan.....	8.C-1
8.d. Traffic Impact Study.....	8.D-1
8.e. Drainage and Erosion Control Report and Plan	8.E-1
8.f. Floodplain Hydraulic/Hydrologic Modeling Report	8.F-1
8.g. Groundwater Modeling Report.....	8.G-1
8.h. Non-subdivision Water Supply Inquiry	8.H-1
8.i. Simulation of the Appearance of the Facility	8.I-1
8.j. Computer Modeled Electromagnetic Field Measurements	8.J-1
8.k. Noise Analysis	8.K-1
8.l. Air Quality Impact and Mitigation Report	8.L-1

Section 9	Adjacent Property Owner List	9-1
Section 10	Application Fee.....	10-1
Section 11	Signed Pre-Application Conference Form and Submittal Checklist	11-1
Section 12	Additional Information.....	12-1
References		R-1

Volume 2 of 2

Table of Contents	II
Thornton Water Project Acronyms and Abbreviations	VII
Appendices	

Appendix A Alternatives Analyses

A-1 Technical Report – Thornton Water Project, Reach 2 Alternative Corridors Analysis	
A-2 Technical Memorandum 5.1.12.2 – Thornton Water Project, Larimer County	
Alternative Configurations Analysis – WSSC Reservoir Area to Larimer County Road 9	

Appendix B Public Outreach Information

B-1 TWP Community Updates	
B-2 Comments Received via Website, E-mail, and Letters	
B-3 News Articles	
B-4 Open Houses	
B-5 HOA Outreach	
B-6 Community Update Meeting	

Appendix C ERO Natural and Cultural Resources Assessment

C-1 Natural and Cultural Resources Assessment, Thornton Water Project, Larimer, Weld, and Adams Counties, Colorado	
C-2 Addendum to the Natural and Cultural Resources Assessment, Thornton Water Project, Larimer County, Colorado	

Appendix D Best Management Practices

Appendix E Stakeholder Outreach

Volume 1 Figures

2.a-1	TWP Corridor Map.....	2-2
2.a-2	Example Appurtenance: Water Tank	2-5
2.a-3	Example Buried Appurtenances	2-6
2.a-4	Example Pump Stations.....	2-8
2.a-5	Typical Easement	2-9
2.a-6	Construction Activities	2-10
2.a-7	Example Open Cut Construction Section	2-13
2.e-1-1	TWP Zoning Map	2-23

2.e.1-2	Photo of Similar Water Pipeline Project Restoration	2-29
2.f	Larimer County Front Range Land Use Framework Map 3.2 with TWP Corridor	2-45
2.j	TWP Timeline	2-52
3-1	Vicinity Map Index	3-2
3-2	Vicinity Map	3-3
3-3	Vicinity Map	3-4
3-4	Vicinity Map	3-5
3-5	Vicinity Map	3-6
3-6	Vicinity Map	3-7
3-7	Vicinity Map	3-8
3-8	Vicinity Map	3-9
3-9	Vicinity Map	3-10
3-10	Vicinity Map	3-11
3-11	Vicinity Map	3-12
3-12	Vicinity Map	3-13
3-13	Vicinity Map	3-14
3-14	Vicinity Map	3-15
3-15	Vicinity Map	3-16
3-16	Vicinity Map	3-17
3-17	Vicinity Map	3-18
3-18	Vicinity Map	3-19
3-19	Vicinity Map	3-20
3-20	Vicinity Map	3-21
3-21	Vicinity Map	3-22
3-22	Vicinity Map	3-23
3-23	Vicinity Map	3-24
3-24	Vicinity Map	3-25
3-25	Vicinity Map	3-26
4.b	Existing Utility Corridors	4-4
4.d-1	Soil Map	4-5
4.d-2	Soil Map	4-6
4.d-3	Soil Map	4-7
4.d-4	Soil Map	4-8
4.d-5	Soil Map	4-9
4.d-6	Soil Map	4-10
4.d-7	Soil Map	4-11
4.d-8	Soil Map	4-12
4.d-9	Soil Map	4-13
4.d-10	Soil Map	4-14
4.d-11	Soil Map	4-15
4.e	100-Year Floodplain	4-16
4.f-1	Geologic Hazards	4-17

4.f-2	Soil Erodibility Map.....	4-18
4.f-3	Soil Erodibility Map.....	4-19
4.f-4	Soil Erodibility Map.....	4-20
4.f-5	Soil Erodibility Map.....	4-21
4.f-6	Soil Erodibility Map.....	4-22
4.f-7	Soil Erodibility Map.....	4-23
4.f-8	Soil Erodibility Map.....	4-24
4.f-9	Soil Erodibility Map.....	4-25
4.f-10	Soil Erodibility Map.....	4-26
4.f-11	Soil Erodibility Map.....	4-27
4.f-12	Soil Erodibility Map.....	4-28
4.h	HUC Watersheds	4-29
4.i-1	Topographic Map	4-30
4.i-2	Topographic Map	4-31
4.i-3	Topographic Map	4-32
4.i-4	Topographic Map	4-33
4.i-5	Topographic Map	4-34
4.l-1	Wildfire Hazards	4-35
4.n	Commercial Mineral Mines	4-36
5-1	1041 Permit Site Map for TWP Corridor	5-2
5-2	1041 Permit Site Map for TWP Corridor	5-3
5-3	1041 Permit Site Map for TWP Corridor	5-4
5-4	1041 Permit Site Map for TWP Corridor	5-5
5-5	1041 Permit Site Map for TWP Corridor	5-6
6-1	Reduced 1041 Site Permit Map for TWP Corridor	6-2
6-2	Reduced 1041 Site Permit Map for TWP Corridor	6-3
6-3	Reduced 1041 Site Permit Map for TWP Corridor	6-4
6-4	Reduced 1041 Site Permit Map for TWP Corridor	6-5
6-5	Reduced 1041 Site Permit Map for TWP Corridor	6-6
8.c-1	Wildfire Hazards	8.C-2
8.c-2	Geologic Hazards	8.C-3
8.d-1	TWP Corridor Map.....	8.D-2
8.d-2	Railroad Crossings	8.D-8
8.d-3	Possible Delivery and Commuting Routes.....	8.D-14
8.d-4	(A) Road Closure with Diversion, (B) Partial Road Closure with Flaggers, (C) Road Closure with Diversion.....	8.D-16
8.e-1	Drainage and Erosion Control.....	8.E-2
8.e-2	Soil Erodibility	8.E-5
8.f	100-Year Floodplain.....	8.F-2
8.g	South Platte River Basin and Associated Alluvial Aquifers.....	8.G-2
9-1	Adjacent Property Owner Notification Area	9-2
9-2	Adjacent Property Owner Notification Area	9-3

9-3	Adjacent Property Owner Notification Area	9-4
9-4	Adjacent Property Owner Notification Area	9-5
9-5	Adjacent Property Owner Notification Area	9-6

Tables

2.a-1	Probable Water Pipeline Construction Methods at Defined Existing Features	2-14
2.e.1-1	Environmental Checklist for Resources Identified within the TWP Corridor and Study Buffer.....	2-34
2.e.1-2	TWP Corridor Irrigation Ditch Crossings	2-39
2.f	Vegetative Communities within the TWP Corridor in Larimer County.....	2-46
2.g	Impacted Existing Condition Reference to Mitigation Measures Location in Application.....	2-46
2.j	Preliminary List of Required TWP Permits and Consultations	2-53
2.k-1	2016 TWP Open House Comments	2-57
2.k-2	September 12, 2017 Community Update Meeting Verbal and Written Comments	2-61
2.l	Evaluation Criteria Cross-Reference Guide	2-76
3	Parcel Information within the Larimer County TWP Corridor	3-27
8.d-1	Roadway Classifications and ADT	8.D-3
8.d-2	Railroads within TWP Corridor.....	8.D-6
8.d-3	Anticipated Construction Vehicles	8.D-10
8.d-4	Possible Delivery and Commuting Routes.....	8.D-12
8.k	Typical Sound Levels Measured in the Environment and Industry	8.K-2