



# Land Use

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

## BOARD OF COUNTY COMMISSIONERS

### AGENDA ITEM

November 29, 2016 – 1:30 P.M.

Hearing Room, Third Floor, County Courthouse, Boulder

## PUBLIC HEARING

**STAFF PLANNER:** Christian Martin, Staff Planner – Flood Recovery

**Docket LU-16-0029: LITTLE THOMPSON WATERSHED COALITION – Little Thompson Restoration (Upstream of N83st Street )**

Request: Limited Impact Special Use Review to undertake stream restoration and flood mitigation works consisting of bank and asset protection requiring 31,600 cubic yards of earthworks along approximately 2,100 linear feet of the Little Thompson River.

Location: 15583, 15555, 15551, 15789, 15785, 15781, 15669, 15623 N 83<sup>rd</sup> St.

Zoning: Agricultural

Applicant: Allison Hamm, Little Thompson Watershed Restoration Coalition

Property Owner: Various private owners

## SUMMARY AND RECOMMENDATION:

The proposal seeks to undertake stream restoration and flood mitigation works consisting of bank and asset protection requiring 31,600 cubic yards of earthworks along approximately 2,100 linear feet of the Little Thompson River that suffered damage during the 2013 flood event. Staff finds the proposal, with the recommended conditions of approval, meets the applicable criteria and recommends **CONDITIONAL APPROVAL**.

## DISCUSSION:

### Proposal

The Little Thompson Watershed Coalition is proposing to undertake stream restoration and flood mitigation works consisting of bank and asset protection works requiring 31,600 cubic yards of earthworks along approximately 2,100 linear feet of the Little Thompson River. The work will take place on private property upstream of the N83<sup>st</sup> Street bridge. The project area is currently mapped as a regulatory floodplain.

The following works are proposed:

- Bank stabilization and reinforcement at critical locations;
- Re-establish the channel at certain locations;
- Re-establish vegetation; and

- Remove flood debris.

A major component of the project is the removal of large sediment deposits to improve conveyance. The application states the intention to use cut material as fill where possible; still, a significant amount of material will need to be exported from the site. Of the 31,600 cubic yards of grading, 28,500 cubic yards is to be excavated.

Tentative staging areas and access to the site area has been identified just north of the N83rd Street bridge. Final erosion and sediment control measures will be developed by the selected contractor. Haul routes and a traffic management plan have not yet been finalized but will be prior to permitting.

Native revegetation is proposed, as is invasive species removal. The Little Thompson Watershed Coalition will conduct maintenance and monitoring of vegetation for 3 years.

Concurrence from the US Fish and Wildlife Service has been received, the permitting process with the US Army Corp of Engineers has commenced, and a cultural resource inventory has been undertaken.

Construction is anticipated to commence in January 2017 and last approximately 2-3 months.

The applicant also confirmed that:

- Construction fencing delineating existing vegetation and tree protection will be used;
- Biodegradable hydraulic fluid, steam cleaning of machinery, and a spill kit will be used; and
- The design team will attempt to retain some downed woody material.

### **Site Description**

The subject site is near the northern boundary of Boulder County, just upstream of the N83st Street bridge. The area is predominantly agricultural in character.

### **Site History**

The 2013 Extreme Rain and Flood Event delivered sediment and debris loads causing erosion and realignment of the creek bed in the subject area. The N83rd Street bridge, just downstream from the proposed stream restoration area, is currently being re-constructed.

### **REFERRAL RESPONSES:**

The application was referred to the standard agencies and adjacent property owners. Copies of all responses received by the Land Use Department are attached. A summary of each response follows:

**Boulder County Building Safety and Inspection Services Team:** Response states a Stream Restoration Permit (combined Grading Permit and Floodplain Development Permit) and observation reports from the design engineer (or other qualified engineer) will be required.

**Boulder County Transportation Department – Development Review Team:** Response requires the final site access (and any required easements/permissions) to be submitted, the submission of a traffic control plan, restricted haul hours (8:30 a.m. – 4 p.m.), coordination with Boulder County’s Transportation regarding N83rd Street bridge construction, no parking/staging in the N83<sup>rd</sup> Right of Way, engineered plans, and erosion control measures.

**Boulder County Transportation Department – Floodplain Review Team:** The project area is within the Little Thompson River regulatory floodplain. A floodplain development permit is required (part of the stream restoration permit) and must include either a no-rise analysis or an approved

Conditional Letter of Map Revision from FEMA. Demonstration of coverage under a USACE Nationwide or Individual 404 permit is also required.

**Boulder County - Parks and Open Space (POS):** This agency reviewed the proposal and noted the significant improvements that will likely result. Specific information regarding the delineation of existing vegetation, use of biodegradable hydraulic fluid and a spill kit, steam cleaning of machinery, retention of some downed woody material, timing of dead tree removal, weed free material use, submission of final staging areas, vegetation monitoring and protection responsibilities, and weed management practices was requested or required.

**Boulder County Historic Review; Boulder County Surveyor; Boulder County Public Health Little Thompson Water District; Poudre Valley Rural Electric Association; Century Link:** These agencies confirmed they had no concerns with the project as proposed.

**Xcel Energy** This agency stated no apparent conflict, but request the applicant contact the Utility Notification Center to ensure natural gas distribution facilities in the N83<sup>rd</sup> Street Right-of-Way are identified if construction is to take place.

**Adjacent Property Owners:** 55 referrals sent; no comments received.

**CRITERIA REVIEW:**

**Article 4-601** of the Boulder County Land Use Code sets the standards for Uses Permitted by Limited Impact Special Review. This proposal has been reviewed for earthworks in excess of 500 cubic yards per these criteria and finds the following:

- (1) Complies with the minimum zoning requirements of the zoning district in which the use is to be established, and will also comply with all other applicable requirements;***

The project is located within the Agricultural zoning district and the Floodplain Overlay district for the Little Thompson River.

The project includes work within an Area of State Interest as an area containing archaeological resources, an area containing natural resources, and a flood and geologic hazard area as per Article 8-308 of the Land Use Code. Such work would require a 1041 review and approval; however, Article 8-405.E requires the 1041 review “*unless the development is otherwise regulated with full and binding effect under other Articles of this code.*” The Land Use Department has in a number of instances substituted the Limited Impact process for 1041 review for earthwork projects in flood hazard areas as the scope of the projects are relatively small and typically the impacts of these projects are localized to the site under consideration. In this case, Limited Impact Special Use review is therefore allowed as the substitute process given the proposed earthwork is greater than 500 cubic yards.

The application states that concurrence from the US Fish and Wildlife Service has been received and that the permitting process with the US Army Corp of Engineers has commenced. Further, a cultural resource inventory has been undertaken. Other applicable requirements, which have been incorporated as recommended conditions of approval, include obtaining a stream restoration permit (combined grading permit and floodplain development permit).

With the proposed conditions of approval, this criterion is met.

- (2) The use will be compatible with the surrounding area. In determining compatibility, the Board should consider the location of structures and other improvements on the site; the***

*size, height and massing of the structures; the number and arrangement of structures; the design of structures and other site features; the proposed removal or addition of vegetation; the extent of site disturbance, including, but not limited to, any grading and changes to natural topography; and the nature and intensity of the activities that will take place on the site. In determining the surrounding area, the Board should consider the unique location and environment of the proposed use; assess the relevant area that the use is expected to impact; and take note of important features in the area including, but not limited to, scenic vistas, historic townsites and rural communities, mountainous terrain, agricultural lands and activities, sensitive environmental areas, and the characteristics of nearby development and neighborhoods;*

The subject area and surrounds are primarily utilized for agricultural and residential purposes.

The work area is visually contained to the subject parcels; views from other surrounding areas and roads are generally obscured or at some distance. One aim of the proposed works, in particular the berm that is perpendicular to the river, is protect adjoining fields from flood damage. Other works are focused on increasing conveyance and enhancing habitat. Once earthworks are complete and revegetation has established, the area will appear consistent with the rural character of the surrounds.

Given the above, the proposal is considered to be consistent with this criterion.

**(3) *Will be in accordance with the Boulder County Comprehensive Plan;***

The subject property has various Comprehensive Plan designations including Riparian Area, Wetlands, Preble's Meadow Jumping Mouse Habitat – Suitable, Non-contiguous, and Archeological Travel Route. These designations highlight that creek corridors are important ecological areas which should be protected and preserved.

The rehabilitation of the project area will result in ecological benefits for the Little Thompson River in this area, thereby supporting the goals of the Boulder County Comprehensive Plan to restore ecosystems as outlined in the Environmental Resources Element.

A number of preferences and requirements were articulated in the referral letter (dated November 7, 2016) from Parks and Open Space (POS) that will be conditions of approval broadly covering specific construction practices, existing vegetation delineation, and revegetation practices. It is noted the applicant has incorporated many of the suggested recommendations from the POS referral letter into the application and will have an ecologist review and incorporate, where suitable, other suggestions in the final plans to be submitted with the stream restoration permit application. Suitable conditions will be imposed.

Overall, the proposal meets this criterion.

**(4) *The use will not result in an over-intensive use of land or excessive depletion of natural resources. In evaluating the intensity of the use, the Board should consider the extent of the proposed development in relation to parcel size and the natural landscape/topography; the area of impermeable surface; the amount of blasting, grading, or other alteration of the natural topography; the elimination or disruption of agricultural lands; the effect on significant natural areas and environmental resources; the disturbance of plant and animal habitat, and wildlife migration corridors; the relationship of the proposed development to natural hazards; and available mitigation measures such as the preservation of open lands, the addition or restoration of natural features and screening, the reduction or rearrangement of structures and land disturbance, and the use of sustainable construction techniques, resource use, and transportation management;***

The use of the land will not change. The disturbance to habitat will be for a limited period during construction and is not expected to unduly disrupt wildlife. Ecological benefits are anticipated in the long-term.

Overall, the proposal will not constitute an over-intensive use of land nor will it deplete natural resources on the site. With the proposed conditions of approval, this criterion can be met.

**(5) *Will not have a material adverse effect on community capital improvement programs;***

No information has been presented or identified that indicates the proposal will have an adverse effect on community capital improvement programs. Consequently, staff finds the proposal meets this criterion.

**(6) *Will not require a level of community facilities and services greater than that which is available;***

No adverse effect on community facilities and services are anticipated. Consequently, staff finds the proposal meets this criterion.

**(7) *Will support a multimodal transportation system and not result in significant negative impacts to the transportation system or traffic hazards;***

The referral letter from the county's Transportation Department (dated October 28, 2016) outlines a number of conditions of approval, including the submission of a traffic control plan, restricted hauling hours, final staging/access locations, engineered plans, oversize/overweight permits, coordination with the Boulder County Transportation Department regarding the N83rd Street bridge construction, and erosion control that will ensure no significant negative impacts will result on the transportation system.

The imposition of appropriate conditions of approval, as outlined in the Transportation referral letter (dated October 28, 2016), will ensure this criterion is met.

**(8) *Will not cause significant air, odor, water, or noise pollution;***

As noted above, the use of erosion control measures and appropriate haul hours as well as biodegradable hydraulic fluids in machinery, and spill kits (POS referral letter dated November 7, 2016), will ensure that air, odor, water and noise pollution will be appropriately controlled.

**(9) *Will be adequately buffered or screened to mitigate any undue visual impacts of the use;***

The work site is visually confined to the immediately surrounding properties. The construction period is limited and any undue visual impacts are correspondingly minor. Once completed, the area will appear consistent with the character of the surrounds and therefore this criterion is met.

**(10) *Will not otherwise be detrimental to the health, safety, or welfare of the present or future inhabitants of Boulder County;***

The proposed works will result in a more resilient waterway and a reduction in floodwater impacts on agricultural operations and therefore improve the health, safety and welfare of future inhabitants. As such, the proposal meets this criterion.

- (11) *Will establish an appropriate balance between current and future economic, environmental, and societal needs by minimizing the consumption and inefficient use of energy, materials, minerals, water, land, and other finite resources;*

The proposal is considered to strike an appropriate balance in terms of the resources required to undertake the work and the benefits that will result. The proposal satisfies the above criterion.

- (12) *The use will not result in unreasonable risk of harm to people or property – both onsite and in the surrounding area – from natural hazards. Development or activity associated with the use must avoid natural hazards, including those on the subject property and those originating off-site with a reasonable likelihood of affecting the subject property. Natural hazards include, without limitation, expansive soils or claystone, subsiding soils, soil creep areas, or questionable soils where the safe-sustaining power of the soils is in doubt; landslides, mudslides, mudfalls, debris fans, unstable slopes, and rockfalls; flash flooding corridors, alluvial fans, floodways, floodplains, and flood-prone areas; and avalanche corridors; all as identified in the Comprehensive Plan Geologic Hazard and Constraint Areas Map or through the Special Review or Limited Impact Special Review process using the best available information. Best available information includes, without limitation, updated topographic or geologic data, Colorado Geologic Survey landslide or earth/debris flow data, interim floodplain mapping data, and creek planning studies;*

The primary natural hazard of concern in the area of the project is flooding. The proposed works will increase the stability and resilience of the creek. The referral letter from Floodplain (dated October 24, 2016) has stated a floodplain development permit will be required. Evidence that no-rise will occur to the base flood elevation (or a Conditional Letter of Map Revision) will ensure that the proposal does not result in an unreasonably increased risk of flooding to people or property in the area.

The works proposed are relatively consistent with the recommendations of the Little Thompson Watershed Restoration Master Plan through bank stabilization, revegetation, and protecting nearby infrastructure. Some aspects, including the reclamation of eroded overbank surfaces, were not incorporated due to specific landowner preferences.

Final staging areas shall be identified on plans submitted for approval before construction commences and shall be kept, as much as reasonably practical, away from the channel and floodplain of Little Thompson River.

With the proposed conditions of approval, the proposal satisfies the above criterion.

**RECOMMENDATION:**

For the reasons described above, Land Use staff recommends that the Board of County Commissioners **CONDITIONALLY APPROVE Docket LU-16-0029: Little Thompson Watershed Coalition – Little Thompson Restoration (Upstream of N83rd Street )** with the following conditions:

- 1) *Prior to the commencement of site disturbance*, the Applicant shall obtain a Stream Restoration Permit (combined County Grading Permit from Building Safety and Inspection Services in the Land Use Department and a County Floodplain Development Permit from the Transportation Department). Additionally, plan review and inspections approval will be required.

- 2) Appropriate erosion control measures shall be installed downslope and parallel to contours for all disturbed areas including staging areas. The location of erosion control shall be shown on site plans **submitted for stream restoration permit approval**. Stockpiled fill piles over 30 days shall be properly covered and/or stabilized with temporary vegetation.
- 3) **At the time of stream restoration permit application**, final staging areas shall be shown on the plans submitted for approval and shall be kept away from the channel and floodplain of the Little Thompson River as much as reasonably practical.
- 4) **At the time of stream restoration permit application**, the applicant must submit a traffic control plan that satisfies the points outlined in the referral letter (dated October 28, 2016) from the Boulder County Transportation Department for review and approval.
- 5) Hours of hauling shall be limited to 8:30am – 4pm.
- 6) There shall be no parking/staging in the 83<sup>rd</sup> Street Right-of-Way.
- 7) The applicant must obtain all necessary permits **before commencing operations**, including a stormwater permit from the State of Colorado (for over 1 acre of disturbance) and/or an Oversize/Overweight permit from the County, if applicable.
- 8) In accordance with the comments provided in the County Parks and Open Space referral letter dated November 7, 2016:
  - a. Biodegradable hydraulic fluids must be used in all heavy machinery.
  - b. All equipment must be steam cleaned prior to site entry.
  - c. A ‘spill kit’ and procedures must be on-site during all work with heavy machinery.
  - d. Any trees removed should be done so between September 1 and March 31, the non-nesting season for migratory birds.
  - e. A memo prepared by the project’s ecologist addressing the various points outlined in the Parks and Open Space referral **shall be provided as part of the stream restoration permit application**.
- 9) The Applicant shall be subject to the terms, conditions, and commitments of record and in the file Docket LU-16-0029: Little Thompson Watershed Coalition – Little Thompson Restoration (Upstream of N83rd Street ).



# Transportation Department

2525 13th Street, Suite 203 • Boulder, Colorado 80304 • Tel: 303.441.3900 • Fax: 303.441.4594  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

October 28, 2016

TO: Christian Martin, Planner II, Land Use Department  
FROM: Chad Schroeder, Development Review Planner  
SUBJECT: Docket #LU-16-0029: Little Thompson Watershed Coalition – N 83rd

The Transportation Department has reviewed the above referenced docket and has the following comments about the proposed development:

1. Access locations for the project shall be shown on plans for building permits. Permission letters/easements from the respective property owners shall be provided.
2. The applicant must develop a traffic control/management plan (for the accesses on County roads) approved by a Traffic Control Supervisor and submit it to the Transportation Department for review and approval at the time of building application. The traffic control/management plan must include:
  - a. The applicant shall provide the haul routes to be used at building permit application for approval. Yellowstone Road shall not be used as part of the haul routes.
  - b. Flaggers and/or other traffic control measures must be used at the intersections of the access points on 83<sup>rd</sup> Street during hauling operations.
  - c. Locations and types of warning signs along the roads shall be shown.
  - d. The applicant must use vehicle tracking to minimize the amount of rocks, mud, and other debris tracked onto 83<sup>rd</sup> Street.
  - e. The applicant must provide a sweeping plan for the affected portion of 83<sup>rd</sup> Street if sweeping becomes necessary.
  - f. Prior to project commencement, the applicant must photo-document the conditions of all County roads used for hauling. The applicant must restore all affected roadways to pre-project conditions or better.
  - g. The project shall be coordinated with the Transportation Department's Public Relations Director, Andrew Barth (303-441-1032).
3. Hours of hauling shall be from 8:30 AM to 4:00 PM to limit impacts on regular vehicular traffic, especially during peak commuter periods.
4. A qualified Professional Engineer registered in the State of Colorado needs to provide stamped engineered plans at the time of building permit application.
5. Final grade cuts and fills shall not be steeper than a 1-½ to 1 slope. Grades steeper than a 1-½ to 1 slope will need to be supported by a retaining wall.
6. Construction staging should be located in areas outside of the 100-year floodplain as best as possible, or as far away from the Little Thompson Creek as possible.
7. There shall be no parking/staging in the 83<sup>rd</sup> Street Right-of-Way.
8. The applicant must obtain all necessary permits before commencing operations, including without limitation: United States Army Corps of Engineers Permits, a stormwater permit from the State of Colorado (for over 1 acre of disturbance), and Oversize/Overweight permits from the Transportation Department (contact Rocky Milano at 303-682-6737) if applicable.
9. Appropriate erosion control measures shall be installed downslope and parallel to contours for all disturbed areas including staging areas. The location of erosion control shall be shown on site plans submitted for building permit approval. Stockpiled fill piles over 30 days shall be properly covered and/or stabilized with temporary vegetation.

This concludes our comments at this time.



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## Building Safety & Inspection Services Team

### MEMO

**TO:** Christian Martin, Staff Planner - Flood Recovery  
**FROM:** Ron Flax, Chief Building Official  
**DATE:** October 31, 2016

**RE:** Referral Response, Docket LU-16-0027: Limited Impact Special Use review for a stream restoration project on a 2,100 linear feet stretch of the Little Thompson River upstream of the N83rd Street bridge consisting of 31,600 cubic yards of earthwork.

Thank you for the referral. We have no conflicts with the proposal, but have the following information for the applicants:

1. **Grading Permit.** A grading permit and plan review and inspections approvals are required.

Please refer to the county's adopted 2015 editions of the International Codes and code amendments, including the most applicable portion, Appendix J (grading) of the International Building Code ("IBC"), which can be found via the internet under the link:

**2015 Building Code Adoption & Amendments**, at the following URL:  
<http://www.bouldercounty.org/dept/landuse/pages/default.aspx>

2. **Engineering Observations.** Observation reports from the design engineer or another qualified engineer stating that the grading work has been accomplished in substantial conformance with the approved grading plans will be required to be submitted to Building Safety & Inspection Services for review and approval prior to final approval of the work covered by the grading permit.
3. **Plan Review.** The items listed above are a general summary of some of the county's building code requirements. A more detailed plan review will be performed at the time of grading permit application, when full details are available for review, to assure that all applicable minimum requirements are to be met. Our Building Safety publications can be found at:

<http://www.bouldercounty.org/property/build/pages/bldingdf.aspx>

If the applicants should have questions or need additional information, we'd be happy to work with them toward solutions that meet minimum building code requirements. Please call (720) 564-2640 or contact us via e-mail at [building\\_official@bouldercounty.org](mailto:building_official@bouldercounty.org)



# Transportation Department

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Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

October 24, 2016

TO: Christian Martin, Planner II, Land Use

FROM: Harry Katz, Floodplain Permitting Specialist, Transportation

**SUBJECT:** Docket LU-16-0029: Little Thompson Watershed Coalition - N83rd Street  
**Request:** Limited Impact Special Use review for a stream restoration project on a 2,100 linear feet stretch of the Little Thompson River upstream of the N83rd Street bridge consisting of 31,600 cubic yards of earthworks.  
**Location:** Parcels 120506000029, 120506000006, 120506000007, 120506000008, 120506000009, 120506000013, 120506000015, 120506000024, located at Little Thompson River upstream of the N83rd Street bridge, in Section 6, T3N, R69W.

The Transportation Department – Floodplain Management Program has reviewed the above referenced docket and has the following comments:

1. The proposed development is located within the Floodplain Overlay District. In accordance with Article 4-400 of the Boulder County Land Use Code, a Floodplain Development Permit (FDP) is required for this project.
2. The FDP application will require certification of the design by a Colorado Registered Professional Engineer.
3. The FDP application will require certification of no-rise in 100 year water surface elevations by a Colorado Registered Professional Engineer or an approved Conditional Letter of Map Revision (CLOMR) from FEMA.
  - a. A Letter of Map Revision (LOMR) is required after project completion. This must include a floodway delineation for a target 0.50 ft rise in water surface elevation.

Additional Information:

1. The proposed development will need to meet all local, state, and federal regulations.
2. Demonstration of coverage under a USACE Nationwide or Individual 404 permit is required prior to FDP issuance.
3. Please contact Harry Katz (Floodplain Permitting Specialist; Transportation Department) at [hkatz@bouldercounty.org](mailto:hkatz@bouldercounty.org) or 720-564-2865 to discuss FDP including hydraulic analysis requirements.

This concludes our comments at this time.



# Land Use

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Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

**MEMO TO:** Agencies and Adjacent Property Owners  
**FROM:** Christian Martin, CFM, Planner II – Flood Recovery  
**DATE:** October 17, 2016  
**RE:** Docket LU-16-0029

**Docket LU-16-0029: Little Thompson Watershed Coalition - N83rd Street**

**Request:** Limited Impact Special Use review for a stream restoration project on a 2,100 linear feet stretch of the Little Thompson River upstream of the N83rd Street bridge consisting of 31,600 cubic yards of earthworks.  
**Location:** Parcels 120506000029, 120506000006, 120506000007, 120506000008, 120506000009, 120506000013, 120506000015, 120506000024, located at Little Thompson River upstream of the N83rd Street bridge, in Section 6, T3N, R69W.  
**Zoning:** Agricultural (A) Zoning District  
**Applicant:** Allison Hamm, Little Thompson Watershed Coalition

Limited Impact Special Review is required of proposed uses that may have greater impacts on services, neighborhoods, or the environment than those allowed by right under the Boulder County Land Use Code. This process will review conformance of the proposed use with the Boulder County Comprehensive Plan and the Land Use Code.

This process includes a public hearing before the Board of County Commissioners. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of this hearing. The Land Use staff and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter. Late responses will be reviewed as the process permits; all comments will be made part of the public record and given to the applicant. Only a portion of the submitted documents may have been enclosed; you are welcome to review the entire file at the Land Use Department. If you have any questions regarding this application, please contact me at (303) 441-3930 or [cpmartin@bouldercounty.org](mailto:cpmartin@bouldercounty.org).

Please return responses to the above address by **November 1, 2016.**

We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed  PRINTED Name Jessica Fasick  
Agency or Address Land Use Historic Review



# Parks and Open Space

5201 St. Vrain Road • Longmont, Colorado 80503  
303.678.6200 • Fax: 303.678.6177 • [www.bouldercounty.org](http://www.bouldercounty.org)

**TO:** Christian Martin, Land Use Department  
**FROM:** Ron West, Natural Resource Planner  
**DATE:** November 7, 2016  
**SUBJECT:** Docket LU-16-0029, Little Thompson Watershed Coalition

## Site Conditions

I have reviewed the submitted materials, and have visited the area in the past. The project area totals about 2100 linear feet of the Little Thompson River. The 2013 flood heavily disturbed this reach, leaving massive quantities of sediment, as described in the application.

## County Comprehensive Plan Designations

The parcel has the following designations in the Boulder County Comprehensive Plan, and from other resource inventories.

- Prebles Meadow Jumping Mouse (PMJM) Habitat – Suitable, Non-contiguous
- Riparian Area
- Wetlands
- Archeological Travel Route
- 100-year Floodplain/Floodway

## Discussion

This project would restore a heavily flood-impacted stream section. None of the above-listed resources should be significantly impacted, and several would be improved in the long-term. The following discussion is divided into: 1) general comments relevant to all stream projects; and 2) questions and comments specific to the proposal. General comments are further divided into: A) planning and construction; B) revegetation; and C) permits.

## **General Comments**

### *Planning and Construction --*

How would areas of existing vegetation – areas that are not to be disturbed – be delineated in the field, so that heavy machinery is prevented from entering the areas? This is often accomplished with orange construction fencing, rather than silt fencing. The former is less expensive, easier to install, and reusable. If individual mature trees are to be protected, what field technique would be used? Young cottonwood seedlings that have naturally sprouted since the flood should be avoided. If not possible, transplanting such seedlings back into the site is highly encouraged.

If tree/root wad wood is to be used for toe protection, where would the trees come from? A drawing detail for toe wood should be included in the application.

Soil riprap (instead of rock-only riprap) should be used in all cases; this is also called void-filled riprap. Fines need to be included within the riprap to allow for natural germination and establishment of plant roots in the long term. Some fines near the water line would unavoidably be washed away in high water events, but without fines, riprap would remain barren for decades. Existing, previously-placed riprap could be mitigated by adding fines. Would riprap rock be imported or would native material – large cobble and river boulder – be used?

As called for in the county's 2016 Storm Drainage Criteria Manual, biodegradable hydraulic fluids must be used in all heavy machinery.

Steam cleaning of all equipment is mandatory, before it enters the site, to remove both noxious plant seeds and aquatic nuisance species.

A "spill kit" must be on-site during all work with heavy machinery -- emergency pollutant isolation and clean-up materials, with procedures.

If already on-site, some large downed woody material should remain, particularly if embedded in stream deposits. Such material plays a critically important ecological role in the riparian community. Additionally, some standing dead trees (snags) should remain on-site, and not all removed simply because they are dead. Any trees removed should be done so between September 1 and March 31, the non-nesting season for migratory birds (federal Migratory Bird Treaty Act).

Staging areas and stream-access corridors must either be included on application submittals, or reviewed by the county prior to grading permit approval. These cannot be left to the discretion of the contractor. Fueling areas must be located in upland sites, as far away from the stream edge as possible, and preferably in areas without porous stream deposits such as sand or cobble. Such areas should be at least 50 feet from the creek, and preferably 100 feet. County road ROWs can be used if approved by the county Transportation Department. Appropriate BMPs for fueling areas must be utilized.

#### *Revegetation --*

A complete list of graminoids, forbs, shrubs and trees must be approved by the county before the grading permit is issued. All species must include scientific names of plants. The use of plantings – containers and/or cuttings – is strongly encouraged, rather than simply grasses.

Tree/shrub cuttings and container plantings should be monitored for three years. Who is responsible for monitoring, and what is the protocol if plantings die? Will temporary irrigation be used?

Staff strongly encourages beaver protection for tree plantings and vole/small mammal protection for shrub plantings. This is often accomplished using plastic mesh collars.

Weed management needs to be incorporated into the project, both pre- and post-construction. Pre-construction, dense stands can be sprayed or mowed. Post-construction, weed control should continue for the three years of monitoring. Weed species targeted could be either those listed on the county's noxious weed list (a sub-set of the state list), or all species on the state's noxious weed lists -- A, B, and C.

If straw mulch or straw bale barriers are used, all straw must be certified weed-free. Hay cannot be used as it contains invasive pasture grass seed.

Would topsoil be imported, or would seeding occur on existing fines? If topsoil is to be imported, where will it come from and how will the introduction of weed seeds be prevented? If used, how deep is the topsoil layer?

Hydroseeding should not be used; it is often unsuccessful in our climate. Grass seeds can be either broadcast or drilled, but rates doubled if broadcast. Hydromulching, after seeding, is encouraged.

*Permits –*

Final US Fish & Wildlife Service clearance needs to be obtained before the grading plan is issued, and the USFWS letter submitted for Land Use files.

If the project includes over one acre of ground disturbance, a state Stormwater Management Plan is necessary.

### **Comments Specific to the Proposal**

Drawing 2 – What specifically are the invasive plant species to be removed? In other words, of all the non-native species in the area, which species are being targeted and which ignored?

See lower right photo on page 8 for example of cottonwood seedlings to be protected or transplanted.

The grading calculation worksheet shows 600 cubic yards of fill for a berm. What is its purpose, and is it necessary? Is it for flood protection for the Norris property, and if so would it be armored?

Given the subject site and elevation, staff suggests *Populus x acuminata* – a hybrid between the plains *P. deltoides* and the mid-elevational *P. angustifolia*. Availability from nurseries is unknown.

The site may be too low for *Muhlenbergia montana*.

### **Recommendations**

- All items discussed above should be considered, and questions resolved.



# Land Use

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

**MEMO TO:** Agencies and Adjacent Property Owners  
**FROM:** Christian Martin, CFM, Planner II – Flood Recovery  
**DATE:** October 17, 2016  
**RE:** Docket LU-16-0029

**Docket LU-16-0029: Little Thompson Watershed Coalition - N83rd Street**

**Request:** Limited Impact Special Use review for a stream restoration project on a 2,100 linear feet stretch of the Little Thompson River upstream of the N83rd Street bridge consisting of 31,600 cubic yards of earthworks.  
**Location:** Parcels 120506000029, 120506000006, 120506000007, 120506000008, 120506000009, 120506000013, 120506000015, 120506000024, located at Little Thompson River upstream of the N83rd Street bridge, in Section 6, T3N, R69W.  
**Zoning:** Agricultural (A) Zoning District  
**Applicant:** Allison Hamm, Little Thompson Watershed Coalition

Limited Impact Special Review is required of proposed uses that may have greater impacts on services, neighborhoods, or the environment than those allowed by right under the Boulder County Land Use Code. This process will review conformance of the proposed use with the Boulder County Comprehensive Plan and the Land Use Code.

This process includes a public hearing before the Board of County Commissioners. Adjacent property owners and holders of liens, mortgages, easements or other rights in the subject property are notified of this hearing. The Land Use staff and County Commissioners value comments from individuals and referral agencies. Please check the appropriate response below or send a letter. Late responses will be reviewed as the process permits; all comments will be made part of the public record and given to the applicant. Only a portion of the submitted documents may have been enclosed; you are welcome to review the entire file at the Land Use Department. If you have any questions regarding this application, please contact me at (303) 441-3930 or [cpmartin@bouldercounty.org](mailto:cpmartin@bouldercounty.org).

Please return responses to the above address by **November 1, 2016.**

We have reviewed the proposal and have no conflicts.

Letter is enclosed.

Signed  PRINTED Name LEE STADELE

Agency or Address BOLD SURVEYOR





# Land Use

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Please return responses to the above address by **November 1, 2016.**

We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed *Amber Kauffman* PRINTED Name AMBER KAUFFMAN  
Agency or Address LITTLE THOMPSON WATER DISTRICT



**Right of Way & Permits**  
1123 West 3<sup>rd</sup> Avenue  
Denver, Colorado 80223  
Telephone: **303.571.3306**  
Facsimile: 303. 571.3284  
donna.l.george@xcelenergy.com

October 31, 2016

Boulder County Land Use  
PO Box 471  
Boulder, Colorado 80306

Attn: Christian Martin

**Re: Little Thompson Watershed Coalition – N83rd Street, Case # LU-16-0029**

Public Service Company of Colorado (PSCo) has reviewed the plans for **Little Thompson Watershed Coalition – N83rd Street** and has **no apparent conflict**.

Please be aware PSCo owns and operates existing natural gas distribution facilities within the North 83<sup>rd</sup> Street right-of-way. As a safety precaution, PSCo would like to remind the developer to call the **Utility Notification Center** at 1-800-922-1987 to have all utilities located should there be any construction activities in this area.

If you have any questions about this referral response, please contact me at (303) 571-3306.

Sincerely,

Donna George  
Contract Right of Way Referral Processor  
Public Service Company of Colorado



# Land Use

Courthouse Annex • 2045 13th Street • Boulder, Colorado 80302 • Tel: 303.441.3930 • Fax: 303.441.4856  
Mailing Address: P.O. Box 471 • Boulder, Colorado 80306 • [www.bouldercounty.org](http://www.bouldercounty.org)

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**DATE:** October 17, 2016  
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Please return responses to the above address by **November 1, 2016.**

We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed Jennie Beck PRINTED Name Jennie Beck  
Agency or Address Poudre Valley Rural Electric Association



# Land Use

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**Zoning:** Agricultural (A) Zoning District

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Please return responses to the above address by **November 1, 2016.**

We have reviewed the proposal and have no conflicts.  
 Letter is enclosed.

Signed *Samuel T. Banulis* PRINTED Name SAMUEL T. BANULIS

Agency or Address CENTURYLINK  
FIELD ENGINEER  
970-305-1390  
SAMUEL.BANULIS@CENTURYLINK.COM.

---

# Limited Impact Special Use Application Little Thompson River – Reach 3 North 83rd Street Emergency Watershed Protection Project

**Prepared by:** Sarah Houghland, PE, CFM

as part of the Resilient Watershed Partners (RWP) Team

**Prepared for:** Boulder County Land Use Department

& Little Thompson Watershed Coalition (LTWC)



October 14, 2016





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## Project Narrative

### Introduction

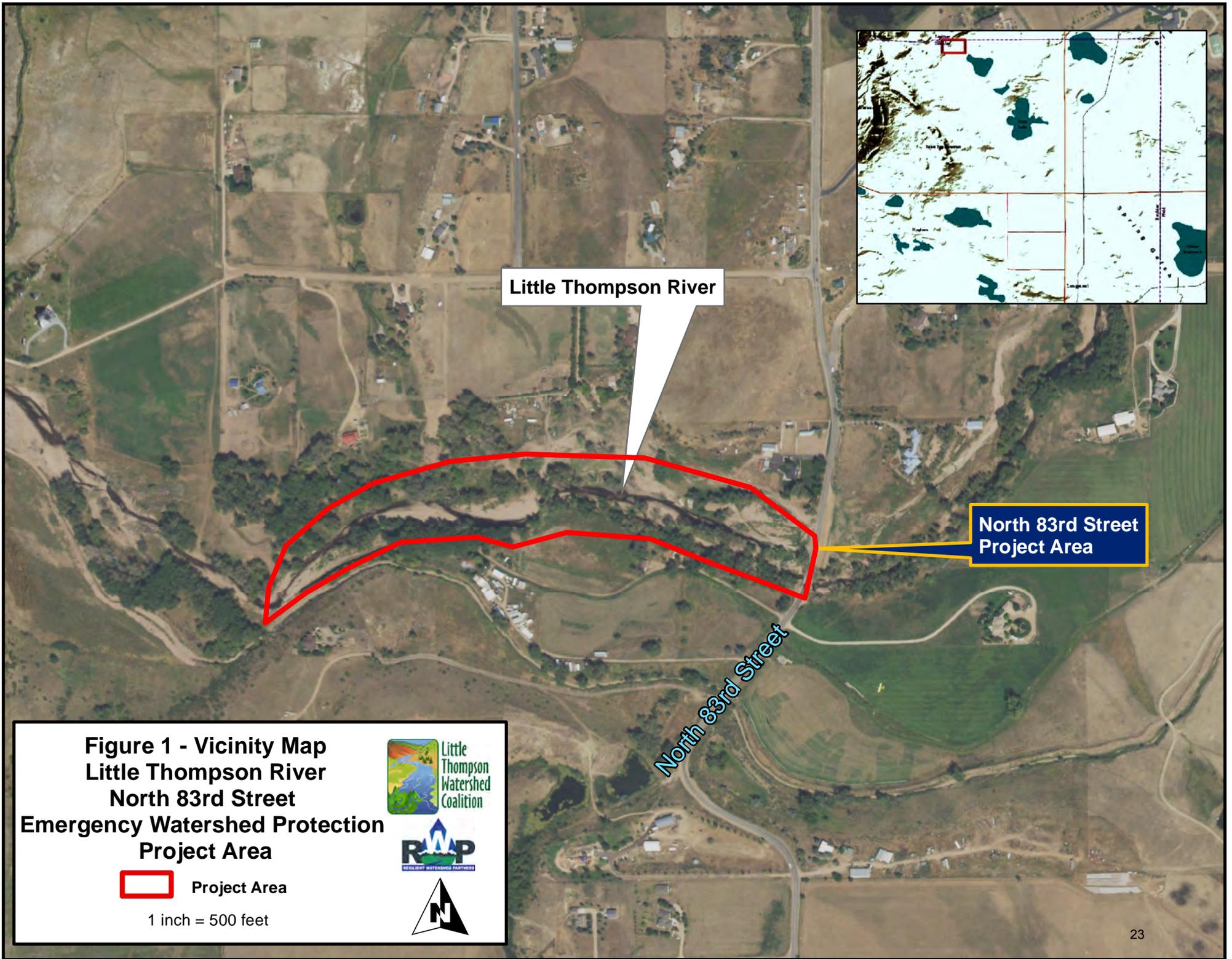
As part of the Emergency Watershed Program (EWP), the Resilient Watershed Partners (RWP) is working with the Little Thompson Watershed Coalition (LTWC) to address issues caused by the September 2013 floods. This report has been prepared to support the Limited Impact Special Use (LISU) application required by Boulder County for Watershed Restoration Projects requiring grading of 500 cubic yards or more. The Little Thompson River – Reach 3 Emergency Watershed Project includes design for flood protection and mitigation upstream of North 83<sup>rd</sup> Street. This reach of the Little Thompson River is generally on the Boulder County - Larimer County border and is located west of North 83<sup>rd</sup> Street and south of County Line Road. **Figure 1** is a vicinity map that shows the location of the project site.

The largest quantity items from the Damage Survey Report (DSR) for the North 83<sup>rd</sup> Street Bridge project include are sediment removal and bioengineering along with top soil and revegetation efforts. Alternatives explored developing the draft drawings for these projects are consistent with the DSR and are elaborated below. Completion of the proposed work will create more resiliency within the watershed by re-establishing vegetation, leaving pre and post flood pathways, and re-enforcing banks near structures that can withstand higher flows.

The LISU Pre-Application meeting was held on July 1, 2016. Representatives from Boulder County Land Use Department, LTWC, and RWP were in attendance. At this phase of the project, field visits with property owners and extensive coordination with the project sponsors and different Boulder County departments has taken place. The EWP project team has reviewed drafts of the plan sets and project reports. Construction is expected to begin in January 2017, and it is estimated that the duration of work for construction will be 2-3 months followed by revegetation establishment beginning Spring 2017.

The required LISU Application components are either contained within the main body of this report or included as attachments. The attachments are:

- Attachment A – Limited Impact Special Use Pre-Application Map
- Attachment B – Draft Site Plan, Plan and Profile Sheets
- Attachment C – Grading Fact Sheet



Little Thompson River

North 83rd Street Project Area

North 83rd Street

**Figure 1 - Vicinity Map  
Little Thompson River  
North 83rd Street  
Emergency Watershed Protection  
Project Area**

 Project Area

1 inch = 500 feet





## Cause of Problem

Most flooding problems for this reach is caused by a very wide floodplain compared to the location of structures and properties near the stream. Many residences are located close to the stream's base channel and are well within a very wide floodplain. The stream loses gradient as it travels east, dropping sediment and wasting of materials as the high kinetic energy developed in the mountain canyons is transferred to lower, more broad potential energy in the plains. The changing stream gradient cannot carry the large quantity of materials attained upstream and deposits the bed load as floodwaters continue downstream. This causes the stream to avulse and follow historic flow paths, sometimes meandering outside of the mapped floodplain. This portion of the Little Thompson River consists of a moderate to low stream gradients with a partial to unconfined floodplain that is conducive for many split flow pathways caused by avulsion and also influenced by anthropologic changes, such as roads and bridges.

In general, damage to properties in these locations are from:

- Split flows defining a new path that damaged houses outside of the mapped floodplain.
- Erosion and deposition at properties within the mapped floodplain.
- Undersized bridges and culverts effecting flow paths and/or clogging with debris causing flooding to nearby properties. The previous North 83<sup>rd</sup> Street bridge was undersized and caused significant backwater conditions for lower frequency flows and overtopping and split flows for higher flood frequencies.

## Alternatives Considered

While the EWP program's goals are to protect life and property as defined by the DSR prepared by the NRCS, alternatives considered within the project areas include also recommendations stated in the *Little Thompson Watershed Restoration Master Plan*, December 2014, prepared by Tetra Tech. The EWP program is not specifically limited to improvements noted in the master plan. The design is informed by the master plans, but not strictly limited to what's shown in them. These alternatives included examining the following issues raised in the Master Plan. The stations referenced below correspond to project location maps that were included in the Master Plan.

- Lower and grade floodplain surfaces upstream of North 83rd Street to improve conveyance capacity and drainage.
- Reclaim eroded overbank surfaces, especially on the south side of the river near Station 1272+00.
- Reconstruct original channel alignment upstream of the North 83<sup>rd</sup> Street bridge (Station 1260+00 to Station 1285+00) and add fill to the flood channel to convert to a stable floodplain surface and direct overtopping flows to the bridge.
- Seed and/or plant riparian vegetation along the bare reworked channel banks is recommended to accelerate revegetation and stability of the banks.
- All recommendations for areas near 83<sup>rd</sup> Street may need to be refined in coordination with future Boulder County Bridge designs.
- Bank stabilization near Station 1279+00.
- A detailed hydraulic analysis of channel and floodplain capacity is recommended for this area.

The design and analysis performed as part of this project mostly follow the recommendations listed in the Master Plan. Exceptions include the following:

- Reclaim eroded overbank surfaces, especially on the south side of the river near Station 1272+00. The property owner in this area does not want the eroded areas addressed.

### Impacted Parcel Information

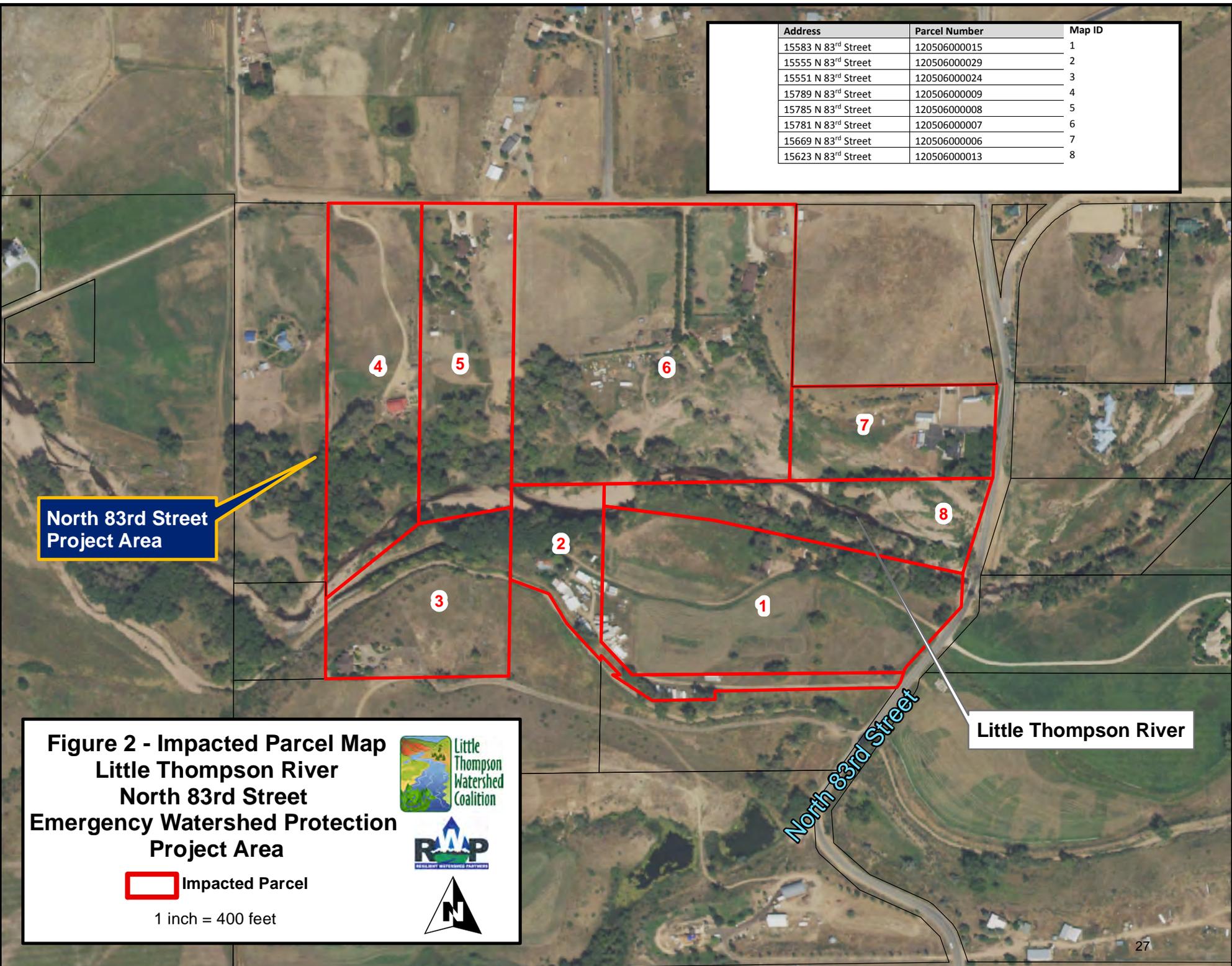
The impacted parcels are listed in **Table 1** and are shown on **Figure 2**. The upstream limit of the project is approximately 50 feet downstream of the 15789 North 83<sup>rd</sup> Street and 15551 North 83<sup>rd</sup> Street property boundaries. Per directive from the Boulder County Land Use Department, Ownership and Encumbrance (O&E) reports are not required for the EWP project. Due to the serious flood damage to the structure at 15623 North 83<sup>rd</sup> Street, Boulder County bought the property as part of FEMA’s buyout program.

Address	Parcel Number	Map ID
15583 North 83 <sup>rd</sup> Street	120506000015	1
15555 North 83 <sup>rd</sup> Street	120506000029	2
15551 North 83 <sup>rd</sup> Street	120506000024	3
15789 North 83 <sup>rd</sup> Street	120506000009	4
15785 North 83 <sup>rd</sup> Street	120506000008	5
15781 North 83 <sup>rd</sup> Street	120506000007	6
15669 North 83 <sup>rd</sup> Street	120506000006	7
15623 North 83 <sup>rd</sup> Street	120506000013	8

*Table 1 – Parcel Information*

**Attachment A** includes the Vicinity Map that the Boulder County Land Use Department provided to include in the LISU permit.

Address	Parcel Number	Map ID
15583 N 83 <sup>rd</sup> Street	120506000015	1
15555 N 83 <sup>rd</sup> Street	120506000029	2
15551 N 83 <sup>rd</sup> Street	120506000024	3
15789 N 83 <sup>rd</sup> Street	120506000009	4
15785 N 83 <sup>rd</sup> Street	120506000008	5
15781 N 83 <sup>rd</sup> Street	120506000007	6
15669 N 83 <sup>rd</sup> Street	120506000006	7
15623 N 83 <sup>rd</sup> Street	120506000013	8



North 83rd Street  
Project Area

Little Thompson River

**Figure 2 - Impacted Parcel Map**  
**Little Thompson River**  
**North 83rd Street**  
**Emergency Watershed Protection**  
**Project Area**



Impacted Parcel

1 inch = 400 feet

## Project Description

### North 83<sup>rd</sup> Street Reach

This purpose of this project is to analyze and resolve outstanding flooding issues upstream of the North 83<sup>rd</sup> Street Bridge. During the 2013 Flood Events, the bridge at North 83<sup>rd</sup> Street over the Little Thompson River failed and the approach road to the north was severely damaged. Although the southern approach road was not seriously damaged, the soil to the east of the road eroded away. Boulder County responded to the flooding condition by installing eight 48-inch CMPs, grading around the pipes, and patching the damaged roadways in order to open the road to traffic. Construction on the North 83<sup>rd</sup> Street bridge is on-going and will be completed in the Winter of 2016.

Basic information and objectives for the North 83<sup>rd</sup> Street project are:

- The entire project reach is approximately 2,100 feet long and begins just approximately 200 feet upstream of the North 83<sup>rd</sup> Street Bridge and extends upstream to a point approximately 80 feet downstream of the Blower Irrigation Ditch Company dam. The downstream project limit is based on the design plans for the North 83<sup>rd</sup> Street Bridge. Approximately 200 feet upstream of the bridge, Boulder County plans to install a drop pool with rock revetment at the upstream end. The EWP project will begin upstream of this drop pool structure.
- Provide bank stabilization and re-enforcement at critical locations.
- Re-establish the channel at certain locations.
- Remove flood debris.
- Re-establish vegetation.

Please refer to **Attachment B** for the draft plan and profile sheets to see to project extents and to refer back to particular project details.

The largest portion of the stream restoration work is the removal of large sediment deposits along the entire reach. Significant channel excavation is required to improve the 100-year flow conveyance. Additionally, grading and channel excavation is proposed to remove flood debris and re-establish the channel and floodplain storage adjacent to the stream.

Analysis and design approaches vary depending on the expected flow regime and channel gradient within the Little Thompson River. The North 83<sup>rd</sup> Street project has a steeper gradient that develops

different channel planforms over time. High gradient streams generally flow at critical to supercritical depth, which are very unstable flow regimes in a natural environment. The natural process in this situation develops shoot and pool channel forms. As such, the design in these locations follows the physical channel formation processes.

The following series of photos captures the existing conditions along the entire reach and documents the proposed stream restoration activity for that specific area.



*Looking at upstream at the small dam on the south bank. The dam is outside of the project area, and there is no proposed stream restoration work in this location.*



*Looking downstream at approximate start of the stream restoration work – 23+00. Debris and invasive plant species removal is proposed on the south bank. Channel excavation will begin at station 23+00. Debris removal and bio stabilization projection measures are proposed for the north bank. Native plant species will be re-established.*



*Debris on the reach's south bank at approximate Station 22+50.*



*Looking downstream at approximate Station 21+50. Sediment and debris removal along with channel excavation are proposed. The low flow channel and bench style bank protection measures will be established.*



*Looking upstream from north bank at approximate Station 22+00. The channel will be excavated and debris will be removed. Bench style bank protection measures will be used.*



*Looking upstream from the north bank at approximate Station 18+00. The channel will be excavated and debris will be removed. Bench style bank protection measures will be used.*



*Looking at the south bank at approximate Station 18+00. Sediment and debris removal are proposed along with bench style bank protection measures.*



*Looking downstream from the north bank at approximate Station 15+00. The continuation of excavation, channel grading, and bench style bank protection measures are proposed in this area.*



*Looking downstream at approximate Station 12+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*



*Looking upstream at approximate Station 12+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*



*Looking upstream from the south bank at approximate Station 10+00. The continuation of excavation, channel grading, and bench style bank protection measures are proposed in this area.*



*Looking north at approximate Station 10+00. The property in the photo is the Spence property. Re-grading is proposed to reconnect the floodplain in this location.*



*Looking downstream at approximate Station 7+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*



*Looking upstream at approximate Station 8+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*



*Looking across the river from the north bank at approximate Station 7+00. The house at the Fuller property is pictured.*



*Looking upstream at approximate Station 5+50. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*



*Looking downstream from the north bank at approximate Station 3+50. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*



*Looking upstream from the north bank at approximate Station 3+00. Excavation, channel grading, and bench style bank protection measures are proposed as a continuation of upstream stream restoration activities.*



*Looking downstream from North 83<sup>rd</sup> Street bridge during construction. This photo was taken on June 8, 2016.*

## Revegetation Plan

The proposed planting plan is part of the EWP project plan. The planting schedule varies by location and the proximity to base or high flows. The plan is to revegetate all disturbed areas in the project. In areas where extensive channel grading and bank stabilization are proposed, invasive species will be removed. The following tables represent planting schedules for low flow locations, base flow or channel flow, locations that are only wet during flood flows, or for upland areas. LTWC will conduct maintenance and monitoring of vegetation for three years.

Table 2 – Proposed Plantings for Locations Close to the Main Channel that will be Wet Most of the Year

<u>Scientific Name</u>	<u>Common Name</u>	<u>Percent of mix</u>	<u>Material Type</u>
<b><u>graminoids</u></b>			
<i>Carex nebrascensis</i>	Nebraska sedge	20	Container
<i>Carex pellita</i>	wooly sedge	20	Container
<i>Eleocharis palustris</i>	creeping spikerush	10	Container
<i>Juncus arcticus</i> ssp. <i>littoralis</i>	mountain rush	15	Container
<i>Juncus ensifolius</i>	three-stamened rush	7.5	Container
<i>Juncus torreyi</i>	Torrey's rush	10	Container
<i>Scirpus microcarpus</i>	panicked bulrush	7.5	Container
<i>Spartina pectinata</i>	prairie cordgrass	10	Container

<u>Scientific Name</u>	<u>Common Name</u>	<u>Percent of mix</u>	<u>Seed number using 150 seeds/sq ft</u>
<b><u>graminoids</u></b>			
<i>Beckmannia syzigachne</i>	American sloughgrass	15	22.5
<i>Calamagrostis canadensis</i>	bluejoint reedgrass	10	15
<i>Glyceria striata</i>	fowl mannagrass	20	30
<i>Juncus arcticus</i> ssp. <i>littoralis</i>	mountain rush	15	22.5
<i>Juncus torreyi</i>	Torrey rush	10	15
<i>Poa palustris</i>	fowl bluegrass	30	45

Table 3 – Proposed Planting Schedule for locations near the Base Full or Channel Full Flow Areas above the Low Flow

<u>Scientific Name</u>	<u>Common Name</u>	<u>Percent of mix</u>	<u>Seed number using 150 seeds/sq ft</u>
<b><u>forb species</u></b>			
<i>Asclepias incarnata</i>	swamp milkweed	2.5	3.8
<i>Geum macrophyllum</i>	largeleaf avens	2.5	3.8
<i>Mimulus guttatus</i>	common monkeyflower	2.5	3.8
<i>Verbena hastata</i>	blue verbena	2.5	3.8
<b><u>graminoids</u></b>			
<i>Beckmannia syzigachne</i>	American sloughgrass	10	15
<i>Calamagrostis canadensis</i>	bluejoint reedgrass	5	7.5
<i>Glyceria striata</i>	fowl mannagrass	10	15
<i>Juncus arcticus ssp. littoralis</i>	mountain rush	15	22.5
<i>Juncus torreyi</i>	Torrey rush	10	15
<i>Nasella viridula</i>	green needlegrass	5	7.5
<i>Poa palustris</i>	fowl bluegrass	20	30
<i>Sorghastrum nutans</i>	yellow Indiangrass	5	7.5
<i>Spartina pectinata</i>	prairie cordgrass	10	15

<u>Scientific Name</u>	<u>Common Name</u>	<u>Percent of mix</u>	<u>Material Type</u>
<b><u>woody species</u></b>			
<i>Salix exigua</i>	Narrowleaf willow	20	Cutting
<i>Salix irrorata</i>	Bluestem willow	5	Cutting
<i>Salix lucida ssp. caudata</i>	Whiplash willow	10	Cutting
<b><u>graminoids</u></b>			
<i>Carex nebrascensis</i>	Nebraska sedge	15	Container
<i>Carex pellita</i>	Woolly sedge	15	Container
<i>Eleocharis palustris</i>	Creeping spikerush	2.5	Container
<i>Juncus arcticus ss. Littoralis</i>	Mountain rush	15	Container
<i>Juncus ensifolius</i>	Three-stamened rush	2.5	Container
<i>Juncus torreyi</i>	Torrey’s rush	2.5	Container
<i>Scirpus microcarpus</i>	Paniced bulrush	2.5	Container
<i>Spartina pectinata</i>	Prairie cordgrass	10	Container



Table 4 – Proposed Planting Schedule for Locations away from the main channel that will experience inundation during infrequent floods.

<u>Scientific Name</u>	<u>Common Name</u>	<u>Percent of mix</u>	<u>Material Type</u>
<b><u>woody species</u></b>			
<i>Betula occidentalis</i>	Western river birch	10	container
<i>Cornus sericea</i>	Redosier dogwood	5	container
<i>Populus deltoids ssp. Monilifera</i>	Plains cottonwood	25	cutting
<i>Prunus virginiana ssp. Melanocarpa</i>	Chokecherry	5	container
<i>Ribes aureum</i>	Golden current	5	container
<i>Salix amygdaloides</i>	Peachleaf willow	5	container
<i>Salix exigua</i>	Narrowleaf willow	20	cutting
<i>Salix irrorata</i>	Bluestem willow	5	container
<i>Salix lucida ssp. caudata</i>	Whiplash willow	5	container
<b><u>Graminoids and others</u></b>			
<i>Carex nebrascensis</i>	Nebraska sedge	5	Container
<i>Eleocharis palustris</i>	Creeping spikerush	5	Container
<i>Equisetum arvense</i>	Scouring rush	5	Rhizome

<u>Scientific Name</u>	<u>Common Name</u>	<u>Percent of mix</u>	<u>Seed number using 150 seeds/sq ft</u>
<b><u>Herbaceous dicot</u></b>			
<i>Campanula rotundifolia</i>	Harebell	3	4.5
<i>Cleome serrulata</i>	Rocky Mountain beeplant	3	4.5
<i>Helianthus nuttallii</i>	Nuttall’s sunflower	3	4.5
<i>Monarda fistulosa</i>	Wild bergamot	3	4.5
<i>Solidago canadensis</i>	Canada goldenrod	3	4.5
<b><u>graminoids</u></b>			
<i>Elymus lanceolatus ssp. Lanceolatus</i>	Thickspike wheatgrass	15	22.5
<i>Glyceria striata</i>	Fowl mannagrass	5	7.5
<i>Juncus arcticus ssp. Littoralis</i>	Mountain rush	5	7.5
<i>Juncus torreyi</i>	Torrey rush	5	7.5
<i>Nasella viridula</i>	Green needlegrass	10	15
<i>Pascopyron</i>	Western wheatgrass	15	22.5
<i>Poa palustris</i>	Fowl bluegrass	15	22.5
<i>Poa secunda</i>	Sandberg bluegrass	15	22.5



Table 5 – Proposed Planting Schedule for Locations away from the main channel that are in upland areas

<u>Scientific Name</u>	<u>Common Name</u>	<u>Percent of mix</u>	<u>Material Type</u>
<b><u>woody species</u></b>			
<i>Cercocarpus montanus</i>	Mountain mohogany	15	container
<i>Holidiscus domosus</i>	Mountain spirea	5	container
<i>Juniperus scopulorum</i>	Rocky Mountain juniper	5	container
<i>Mahonia repens</i>	Creeping mahonia	15	container
<i>Pinus ponderosa</i>	Ponderosa pine	5	container
<i>Populus deltoids ssp. Monilifera</i>	Plains cottonwood	20	cutting
<i>Prunus virginiana ssp. Molanocarpa</i>	Chokecherry	15	container
<i>Ribes aureum</i>	Golden current	5	container
<i>Sumphoricarpus rotundifolius</i>	Roundleaf snowberry	15	container

<u>Scientific Name</u>	<u>Common Name</u>	<u>Percent of mix</u>	<u>Seed number using 150 seeds/sq ft</u>
<b><u>Herbaceous dicot</u></b>			
<i>Campanula rotundifolia</i>	Harebell	2.5	3
<i>Cleome serrulata</i>	Rocky Mountain beeplant	2.5	3
<i>Helianthus nuttallii</i>	Nuttall's sunflower	2.5	3
<i>Monarda fistulosa</i>	Wild bergamot	2.5	3
<i>Solidago canadensis</i>	Canada goldenrod	2.5	3
<i>Vicia americana</i>	American vetch	2.5	3
<b><u>graminoids</u></b>			
<i>Achnatherum hymenoides</i>	Indian ricegrass	5	6
<i>Bouteloua gracilis</i>	Blue grama	5	6
<i>Elymus lanceolatus ssp. Lanceolatus</i>	Thickspike wheatgrass	15	18
<i>Koeleria macrantha</i>	Junegrass	5	6
<i>Muhlenbergia montana</i>	Mountain muhly	5	6
<i>Nasella viridula</i>	Green needlegrass	7.5	9
<i>Pascopyron smithii</i>	Western wheatgrass	15	18
<i>Poa secunda</i>	Sandberg bluegrass	10	12
<i>Psuedoroegenria spicata</i>	Bluebunch wheatgrass	5	6
<i>Schizachyrium scoparium</i>	Little bluestem	10	12



## Erosion Control Plan

At this phase of the project, an erosion control plan has not been established. The selected contractor will create a plan and that information will be provided to Boulder County at a later date. Due to the amount of grading associated with this project, the erosion control plan will be an important component of the contractor's project plan.

## Grading Discussion

The Grading Fact Sheet for this project is included in **Attachment C** in this report. It is the project team's intention to use cut materials for fill where feasible and to minimize material transport if possible. We anticipate materials will need to be exported from and imported to the project site. For the North 83<sup>rd</sup> Street project, a majority of the stream restoration work involves removing sediment and debris from the Little Thompson River channel and banks.

## Traffic Control, Haul Routes, Access Points & Staging Areas

Traffic control, haul routes, project access and staging areas are still under consideration. More details regarding all of these issues will be provided once a contractor is selected. However, the EWP project team has identified the Boulder County owned property at 15623 North 83<sup>rd</sup> Street as a potential access point and staging area. The locations of the access points and staging areas that are under consideration have been include on the plan sheets in **Attachment B**.

## Permitting in Progress

The EWP project team has initiated the Clean Water Act Section 404 Permitting process with the U.S. Army Corps of Engineers.

The North 83<sup>rd</sup> Street project is included in the December 4, 2015, the Natural Resources Conservation Service (NRCS) Emergency Watershed Protection Program Final Biological Assessment for the Northern Colorado Counties. Concurrence from the U.S. Fish and Wildlife Service (USFWS) was received on September 22, 2016, for the North 83<sup>rd</sup> Street project.

In addition, the NRCS has completed a cultural resource inventory and no historic properties will be impacted by these projects.



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Attachment A – Limited Impact Special Use Pre-Application Vicinity Map



# Boulder County Land Use Department

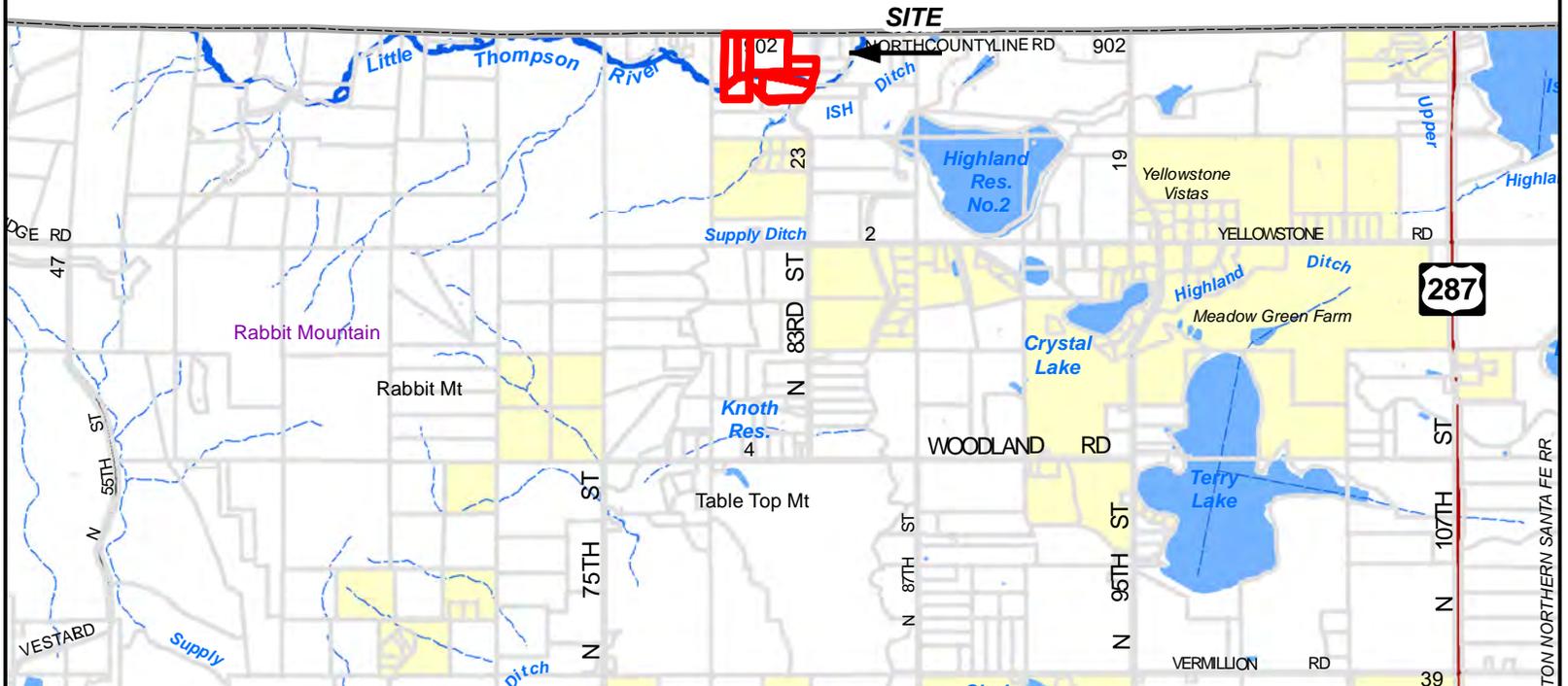
2045 13th Street, Boulder, CO 80302 303-441-3930 www.bouldercounty.org/lu

## Land Use PreApplication Map: Vicinity

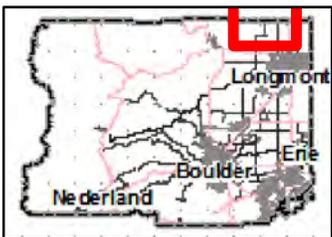
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Parcel No: 120506000008, Parcel No: 120506000009  
Parcel No: 120506000013, Parcel No: 120506000015  
Parcel No: 120506000024, Parcel No: 120506000029

### Legend

-  Subject Property
-  County Boundary
-  Parcels
-  Intermittent Stream
-  Perennial Stream
-  Subdivisions



Area of Detail Date: 10/11/2016



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Attachment B – Draft Site, Plan and Profile Sheets

# EMERGENCY WATERSHED PROTECTION (EWP) PROGRAM

Draft Drawing Set for Internal Review

(NOT FOR CONSTRUCTION)

## LITTLE THOMPSON RIVER ABOVE NORTH 83RD STREET

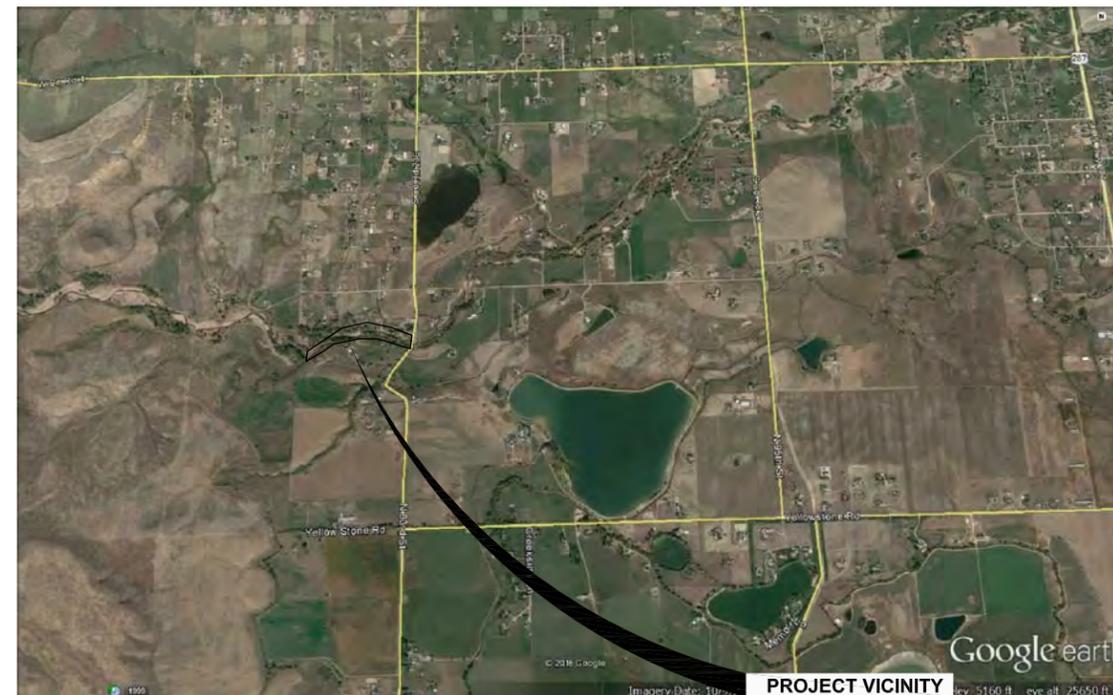
## CHANNEL AND BANK PROTECTION

## BOULDER COUNTY, COLORADO

PREPARED BY:  
RESILIENT WATERSHED PARTNERS  
10106 WEST SAN JUAN WAY, SUITE 215  
LITTLETON, COLORADO 80127

### SHEET INDEX

Sheet List Table	
Sheet Number	Sheet Title
1	COVER SHEET
2	CHANNEL PLAN AND PROFILE
3	SECTION VIEW
4	DETAILS AND OTHER SHEETS, PENDING



VICINITY MAP

NOT TO SCALE

PREPARED FOR:

LITTLE THOMPSON WATERSHED COALITION (LTWC)  
P.O. BOX 1413  
435 HIGH STREET, #201  
LYONS, COLORADO 80540

PREPARED FOR:  
LITTLE THOMPSON  
WATERSHED COALITION  
P.O. BOX 1413  
435 HIGH STREET, #201  
LYONS, COLORADO 80540



PREPARED BY:  
RESILIENT WATERSHED PARTNERS (RWP)  
10106 W SAN JUAN WAY  
LITTLETON CO 80127  
PH : 303-872-9112  
FX : 303-872-9104



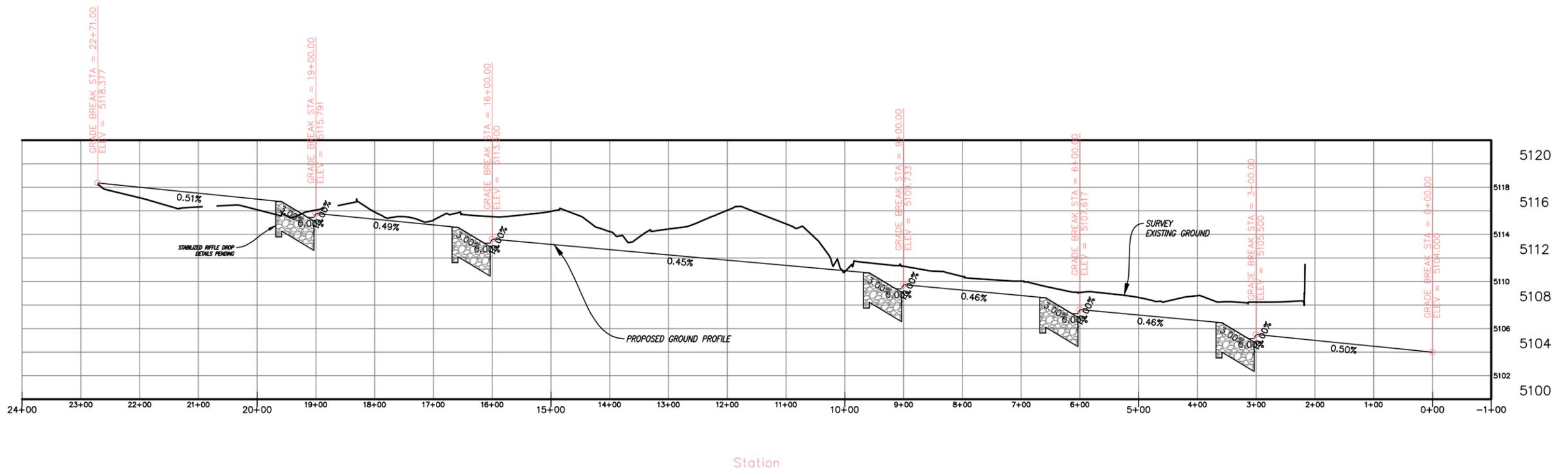
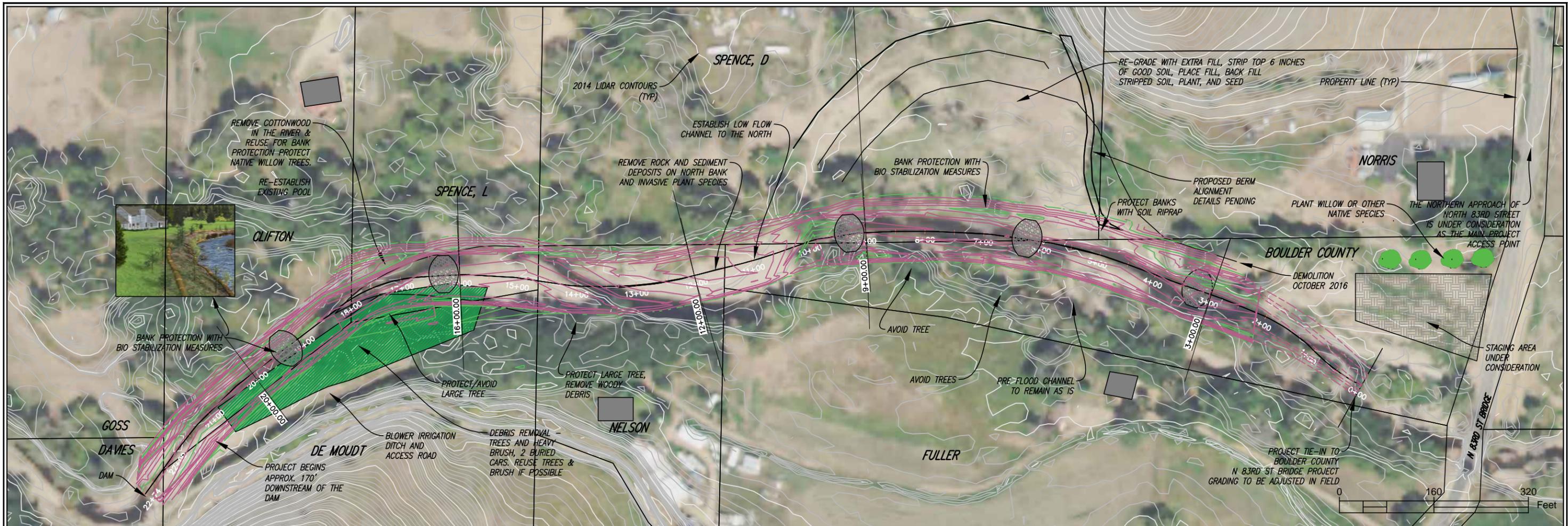
DESIGNED: <i>GEB</i>	REVISION	DESCRIPTION	BY	DATE
DRAWN: <i>GEB</i>	(R-)	xx	...	...
CHECKED: <i>JWS</i>	(R-)	xx	...	...
DATE:	(R-)	xx	...	...
	(R-)	xx	...	...
	(R-)	xx	...	...

CONSULTANT ENGINEER CERTIFICATION  
THESE PLANS ARE DRAFT AND NOT FOR  
CONSTRUCTION. THIS SUBMITTAL IS INTENDED FOR  
REVIEW ONLY.

LITTLE THOMPSON RIVER ABOVE N 83RD ST

COVER SHEET

SHEET/REFERENCE NO.  
41 1 OF 4



PREPARED FOR:  
 LITTLE THOMPSON WATERSHED COALITION  
 P.O. BOX 1413  
 435 HIGH STREET, #201  
 LYONS, COLORADO 80540

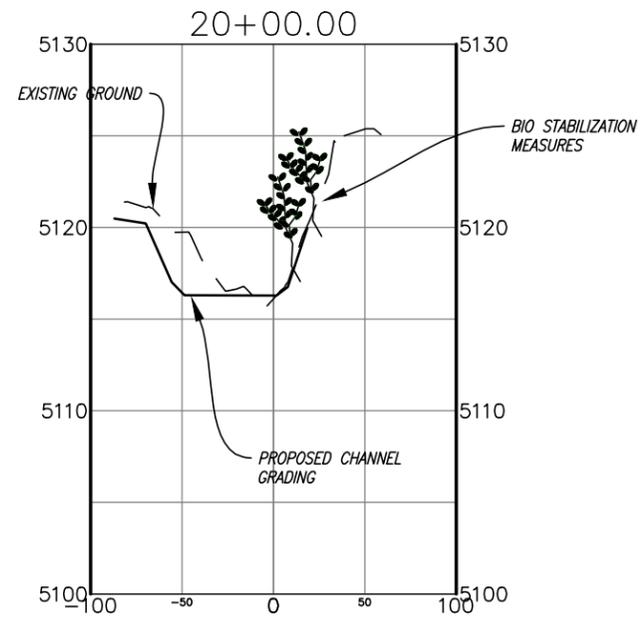
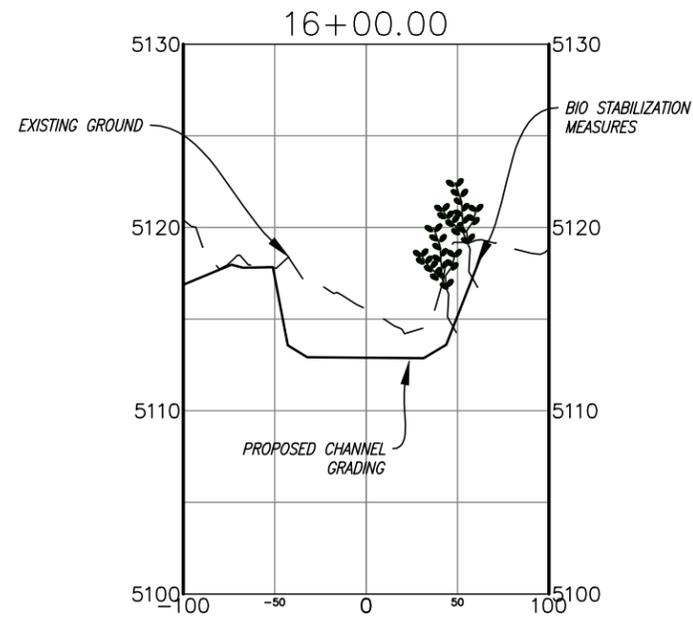
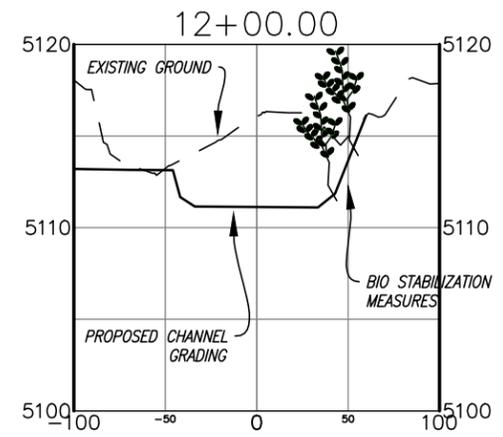
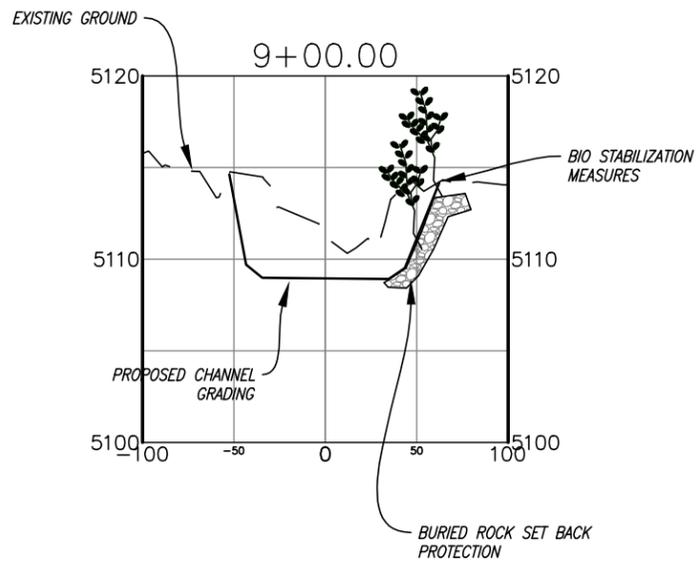
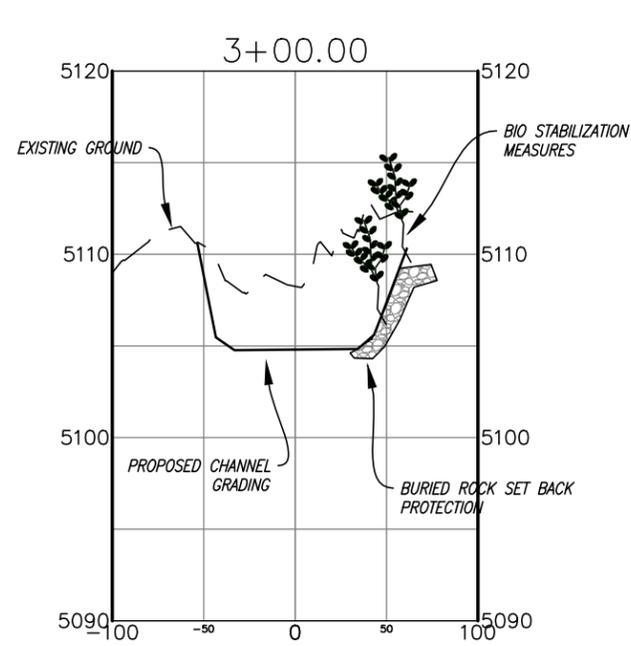
PREPARED BY:  
 RESILIENT WATERSHED PARTNERS (RWP)  
 10106 W SAN JUAN WAY  
 LITTLETON CO 80127  
 PH: 303-872-9112  
 FX: 303-872-9104

DESIGNED:	REVISION	DESCRIPTION	BY	DATE
GEB	(R-)	xx	...	...
GEB	(R-)	xx	...	...
JWS	(R-)	xx	...	...
	(R-)	xx	...	...
	(R-)	xx	...	...
	(R-)	xx	...	...

DATE: 10/05/2016

CONSULTANT ENGINEER CERTIFICATION  
 THESE PLANS ARE DRAFT AND NOT FOR CONSTRUCTION. THIS SUBMITTAL IS INTENDED FOR REVIEW ONLY.

**LITTLE THOMPSON ABOVE N 83RD ST  
 CHANNEL PLAN AND PROFILE**



PREPARED FOR:  
LITTLE THOMPSON  
WATERSHED COALITION  
P.O. BOX 1413  
435 HIGH STREET, #201  
LYONS, COLORADO 80540



PREPARED BY:  
RESILIENT WATERSHED PARTNERS (RWP)  
10106 W SAN JUAN WAY  
LITTLETON CO 80127  
PH : 303-872-9112  
FX : 303-872-9104



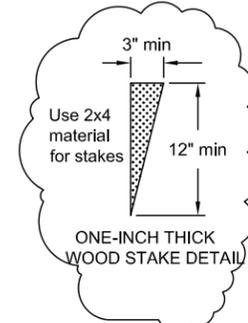
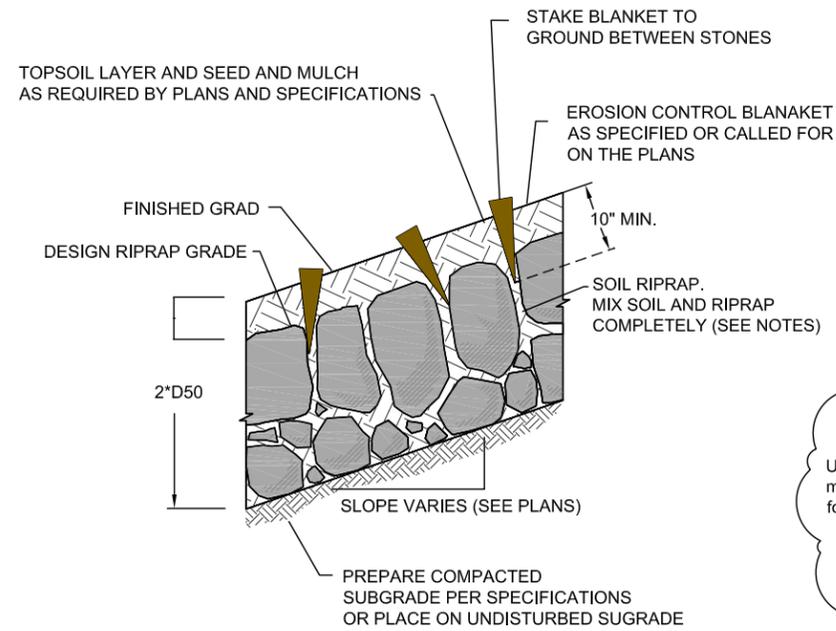
DESIGNED: *GEB*  
DRAWN: *GEB*  
CHECKED: *JWS*  
DATE: 8/23/2016

REVISION	DESCRIPTION	BY	DATE
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(R-) xx	...	...	...
(R-) xx	...	...	...
(R-) xx	...	...	...
(R-) xx	...	...	...

CONSULTANT ENGINEER CERTIFICATION  
THESE PLANS ARE DRAFT AND NOT FOR  
CONSTRUCTION. THIS SUBMITTAL IS INTENDED FOR  
REVIEW ONLY.

LITTLE THOMPSON ABOVE N 83RD ST  
SECTION VIEW

SHEET/REFERENCE NO.  
3  
OF  
4

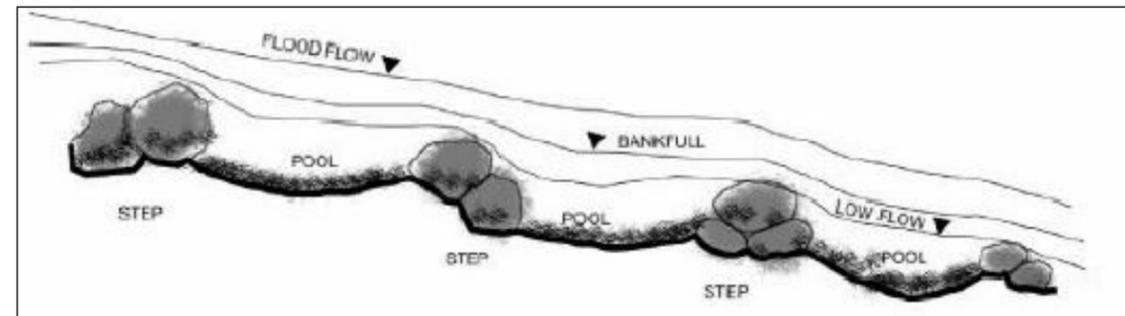


**NOTES:**

1. SOIL RIPRAP DETAILS ARE APPLICABLE TO SLOPED AREAS. REFER TO THE SITE PLAN ACTUAL LOCATION AND LIMITS.
2. MIX UNIFORM ALLY 65% RIPRAP BY VOLUME WITH 35% OF APPROVED SOIL BY VOLUME PRIOR TO PLACEMENT.
3. PLACE STONE-SOIL MIX TO RESULT IN SECURELY INTERLOCKED ROCK AT THE DESIGN THICKNESS AND GRADE. COMPACT AND LEVEL TO ELIMINATE ALL VOIDS AND ROCKS PROJECTING ABOVE DESIGN RIPRAP TOP GRADE.
4. CRIMP OR TACKIFY MULCH OR USE APPROVED HYDROMULCH AS CALLED FOR IN THE PLANS AND SPECIFICATIONS.

**TYPICAL SECTION -  
SOIL RIPRAP WITH EROSION CONTROL FABRIC**

**1 BURIED, MIXED, AND PLANTED BANK PROTECTION DETAIL** NTS



**2 STEP POOL DESIGN FOR LOW FLOW CHANNEL** NTS

REVISION	DESCRIPTION	BY	DATE
(R-)			



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## Attachment C – Grading Fact Sheet

### Grading Calculation

Cut and fill calculations are necessary to evaluate the disturbance of a project and to verify whether or not a Limited Impact Special Use Review (LISR) is required. A Limited Impact Special Use Review is required when grading for a project involves more than 500 cubic yards (minus normal cut/fill and backfill contained within the foundation footprint).

If grading totals are close to the 500 yard trigger, additional information may be required, such as a grading plan stamped by a Colorado Registered Professional Engineer.

### Earth Work and Grading

This worksheet is to help you accurately determine the amount of grading for the property in accordance with the Boulder County Land Use Code. Please fill in all applicable boxes.

**Note:** Applicant(s) must fill in the shaded boxes even though foundation work does not contribute toward the 500 cubic yard trigger requiring Limited Impact Special Use Review. Also, all areas of earthwork must be represented on the site plan.

### Earth Work and Grading Worksheet:

	Cut	Fill	Subtotal
Driveway and Parking Areas	0	0	0
Berm(s)	0	600	600
Other Grading	28,500	2,500	31,000
<b>Subtotal</b>	<b>28,500</b>	<b>3,100</b>	<b>31,600</b>
Box 1			
* If the total in Box 1 is greater than 500 cubic yards, then a Limited Impact Special Review is required.			
	Cut	Fill	Total
Foundation	0	0	0
Material cut from foundation excavation that will be removed from the property			0

### Excess Material will be Transported to the Following Location:

Excess Materials Transport Location:
To Be Determined

### Is Your Property Gated and Locked?

**Note:** If county personnel cannot access the property, it could cause delays in reviewing your application.

### Certification

I certify that the information submitted is complete and correct. I agree to clearly identify the property (if not already addressed) and stake the location of the improvements on the site within four days of submitting this application. I understand that the intent of the Site Plan Review process is to address the impacts of location and type of structures, and that modifications may be required. Site work will not be done prior to issuance of a Grading or Building Permit.

X	Signature <i>Sarah Houghton</i>	Date 10/13/2016
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**Martin, Christian P.**

---

**From:** Sarah Houghland <shoughland@engenuity-es.com>  
**Sent:** Monday, November 14, 2016 9:38 AM  
**To:** Martin, Christian P.  
**Cc:** 'Allison Hamm'  
**Subject:** RE: referrals LU-16-0029  
**Attachments:** N 83rd\_Ron West.docx

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Christian –

Here are my comments/responses for the agencies that responded with referrals.

1. Chad Schroeder, Development Review Planner, Transportation Department. The selected contractor will address these items. I assume these items will be part of your recommendations for conditional approval.
2. Ron Flax, Chief Building Official, Land Use Department. Comments 1 and 3 will be addressed when the grading permit application is submitted for review. Comment 2 will be a condition of the grading permit. I assume these items will be part of your recommendations for conditional approval.
3. Harry Katz, Floodplain, Transportation Department. I submitted the FDP and No Rise Certification to Harry and Varda on November 9, 2016, so Harry did not have it when he sent you the referral. Comments 1, 2 and 3 are in the process of being met. For the Additional Information section, 1 and 2 are in process. The 404 permit application has been submitted to the USACE, and we expect to have approval in early December.
4. Ron West, Natural Resource Planner, Parks and Open Space. I assume responses to many of Mr. West's 11/7/16 comments will be a condition for approval. I have provided a response (see attached) for all of his comments in anticipation that I will have to do this anyway in a couple of weeks. I think his most relevant question is in regards to the berm at the Norris property. I have provided a detailed explanation in the document.

Let me know if you need anything else.

Thanks-

Sarah

***Sarah Houghland, P.E., CFM***

*Senior Project Manager*

**Enginuity Engineering Solutions**

10106 W San Juan Way, Suite 215

Littleton, CO 80127

Office: 303.532.4906

Cell: 303.257.2423

----- Forwarded message -----

From: **Martin, Christian P.** <[cpmartin@bouldercounty.org](mailto:cpmartin@bouldercounty.org)>

Date: Thu, Nov 10, 2016 at 11:25 AM

Subject: referrals LU-16-0029

To: Allison Hamm <[allison.ltwc@gmail.com](mailto:allison.ltwc@gmail.com)>

Gidday Allison

I've collated and attached the referrals we have received for the Little Thompson restoration project.

It would be useful to me if you could review and respond to any points made that you feel would be helpful so I can incorporate any additions and/or changes into the planning report. In particular, please review and comment on Ron West's suggestions.

My aim is to draft a report next week for internal review and it would be great to have any of your comments beforehand.

Any questions, let me know.

Cheers.

Christian Martin, CFM

Planner II – Flood Recovery, Boulder County Land Use

FRPIC – Flood Rebuilding and Permit Information Center

1301 Spruce Street

Boulder, CO, 80513

[303.441.1372](tel:303.441.1372)

--

Allison Hamm

Assistant Watershed Coordinator

[Little Thompson Watershed Coalition](#)

435 High St. #201

P.O. Box 1413

Lyons, CO 80540

Office: (303) 823-2370

Cell: (303) 434-6293

[allison.ltwc@gmail.com](mailto:allison.ltwc@gmail.com)

**North 83<sup>rd</sup> Street/Little Thompson River – Ron West Comments**  
**EWP Response**

**General Comments**

***Planning and Construction***

1. How would areas of existing vegetation – areas that are not to be disturbed – be delineated in the field, so that heavy machinery is prevented from entering the areas? This is often accomplished with orange construction fencing, rather than silt fencing. The former is less expensive, easier to install, and reusable. If individual mature trees are to be protected, what field technique would be used? Young cottonwood seedling that have naturally sprouted since the flood should be avoided. If not possible, transplanting such seedlings back into the site is highly encouraged. **We will include a project area on the final grading plan with the recommendation that orange construction fencing be used. The EWP program’s ecologist will determine the best technique to protect mature trees in the field. The design team will consult with the ecologist for the best recommendation.**
2. If tree/root ward wood is to be used for toe protection, where would the trees come from? A drawing detail for toe wood should be included in the application. **For this project, root wads have not been included in the current design. If root wads are included in later designs, a drawing detail will be included in the final plan set.**
3. Soil riprap (instead of rock-only riprap) should be used in all cases; this is also called void-filled riprap. Fines need to be included within the riprap to allow for natural germination and establishment of plant roots in the long term. Some fines near the water lines would unavoidable be washed away in high water events, but without fines, riprap would remain barren for decades for decades. Existing, previously-placed riprap could be mitigated by adding fines. Would riprap rock be imported or would native material – large cobble and river boulder – be used? **Soil rip rap is proposed for bank stabilization. The design team will try to use native material where feasible.**
4. As called for in the county’s 2016 Storm Drainage Criteria Manual, biodegradable hydraulic fluids must be used in all heavy machinery. **The selected contractor will be required to meet the requirements in the 2016 Storm Drainage Criteria Manual.**
5. Steam cleaning of all equipment is mandatory, before it enters the site, to remove both noxious plant seeds and aquatic nuisance species. **The selected contractor will be required to meet the requirements in the 2016 Storm Drainage Criteria Manual.**
6. A “spill kit” must be on-site during all work with heavy machinery – emergency pollutant isolation and clean-up materials, with procedures. **The selected contractor will be required to meet the requirements in the 2016 Storm Drainage Criteria Manual.**
7. If already on-site, some large downed woody material should remain, particularly if embedded in stream deposits. Such material plays a critically important ecological role in the riparian community. Additionally, some standing dead trees (snags) should remain on-site, and not all removed simply because they are dead. Any trees removed should be done so between September 1 and March 31, the non-nesting season for migratory birds (Federal Migratory Bird Treaty Act). **The design team will try to**
8. Staging areas and stream-access corridors must either be included on applicable submittals, or reviewed by the county prior to grading permit approval. These cannot be left to the discretion of the contractor. Fueling areas must be located in upland sites, as far away from the stream edge as possible, and preferably in areas without porous stream deposits such as sand or cobble. Such areas should be at least 50 feet from the creek, and preferably 100 feet. County road ROWs can be used in approved by the county Transportation Department. Appropriate BMPs for fueling areas must be utilized. **The selected contractor will address these items. The design team has initiated discussions regarding the staging areas and stream-access corridors with property owners, and proposed areas**

have been included on the design plans submitted with the LISU application. These areas will be further defined on the final grading plan submitted with the grading permit.

## **General Comments**

### ***Revegetation***

1. A complete list of graminoids, forbs, shrubs and trees must be approved by the county before the grading permit issued. All species must include scientific names of plants. The use of plantings – containers and/or cuttings – is strongly encouraged, rather than simply grasses. **This recommendation will be passed along to the EWP program’s ecologist. The design team will consult with the ecologist for the best recommendation.**
2. Tree/shrub cuttings and container plantings should be monitored for three years. Who is responsible for monitoring, and what is the protocol if plantings die? Will temporary irrigation be used? **The Little Thompson Watershed Coalition is responsible for monitoring for 3 years. The program’s ecologist will be consulted regarding the protocol if plantings die.**
3. Staff strongly encourages beaver protection for tree plantings and vole/small mammal protection for shrub plantings. This is often accomplished using plastic mesh collars. **This recommendation will be passed along to the EWP program’s ecologist. The design team will consult with the ecologist for the best recommendation.**
4. Weed management needs to be incorporated into the project, both pre- and post-construction. Pre-construction, dense stands can be sprayed or mowed. Post-construction, weed control should continue for the three years of monitoring. Weed species targeted could be either those listed on the county’s noxious weed list (a sub-set of the state list), or all species on the state’s noxious weed lists – A, B, C. **This recommendation will be passed along to the EWP program’s ecologist. The design team will consult with the ecologist for the best recommendation.**
5. If straw mulch or straw bale barriers are used, all straw must be certified weed-free. Hay cannot be used as it contains invasive pasture grass seed. **This recommendation will be passed along to the EWP program’s ecologist. The design team will consult with the ecologist for the best recommendation.**
6. Would topsoil be imported, or would seeding occur on existing fines? If topsoil is to be imported, where will it come from and how will the introduction of weed seeds be prevented? If used, how deep is the topsoil layer? **This recommendation will be passed along to the EWP program’s ecologist. The design team will consult with the ecologist for the best recommendation.**
7. Hydroseeding should not be used; it is often unsuccessful in our climate. Grass seeds can be either broadcast or drilled, but rates doubled if broadcast. Hydromulching, after seeding, is encouraged. **This recommendation will be passed along to the EWP program’s ecologist. The design team will consult with the ecologist for the best recommendation.**

## **General Comments**

### ***Permits***

1. Final US Fish & Wildlife Service clearance needs to be obtained before the grading plan is issued, and the USFWS letter submitted for Land Use files. **The concurrence letter will be filed along with the grading permit.**
2. If the project includes over once acre of ground disturbance, a state Stormwater Management Plan is necessary. **The design team is aware of this requirement and plans to address this requirement.**

### Comments Specific to the Proposal

1. Drawing 2 – What specifically are the invasive plant species to be removed? In other words, of all of the non-native species in the area, which species are being targeted and which ignored? The note was left over from meetings with the property owner to show that he would like to have burdock and other invasive species on his banks removed. However, we plan to grade and supplement the banks with bio-stabilization measure so the invasive species will be removed as part of that process.
2. See lower right photo on page 8 for example of cottonwood seedlings to be protected or transplanted. This recommendation will be passed along to the EWP program's ecologist. The design team will consult with the ecologist for the best recommendation.
3. The grading calculation worksheet shows 600 cubic yards of fill for a berm. What is its purpose, and is it necessary? Is it for flood protection for the Norris property, and if so would it be armored? The EWP team has proposed a temporary flood protection berm on the north bank of the river – located between Stations 5+00 and 6+00. The berm is intended to provide minimal flood protection for the structure at 15669 North 83<sup>rd</sup> Street. The berm height is sized to the 100-year water surface elevations; however, the berm is not designed to 44CFR 65.10 specifications and will not be certified by an engineer. The berm is not intended to meet FEMA requirements for accreditation. Its purpose is to offer protection to the structures in the floodplain. When the Little Thompson River is eventually restudied, the berm should be ignored/not accounted for in the hydraulic modeling and floodplain mapping. The EWP team has repeatedly told property owners that the proposed berm will not remove their property/structures from the floodplains depicted on the FIRMs and will not impact their insurance rates. As far as the NFIP goes, the berm will have no impact.

The neighbor to the west, D. Spence, supports the berm construction (which is on his property) since it provides some flood protection to the Norris property. Also, the Norris' are in the process of rehabilitating their field for future use and appreciate that lower flood frequencies can be kept out of the field.

4. Given the subject site and elevation, staff suggests *Populus x acuminata* – a hybrid between the plains *P. deltoids* and the mid-elevation *P. angustifolia*. Availability from nurseries is unknown. This recommendation will be passed along to the EWP program's ecologist. The design team will consult with the ecologist for the best recommendation.
5. The site may be too low for *Muhlenbergia montana*. This recommendation will be passed along to the EWP program's ecologist. The design team will consult with the ecologist for the best recommendation.